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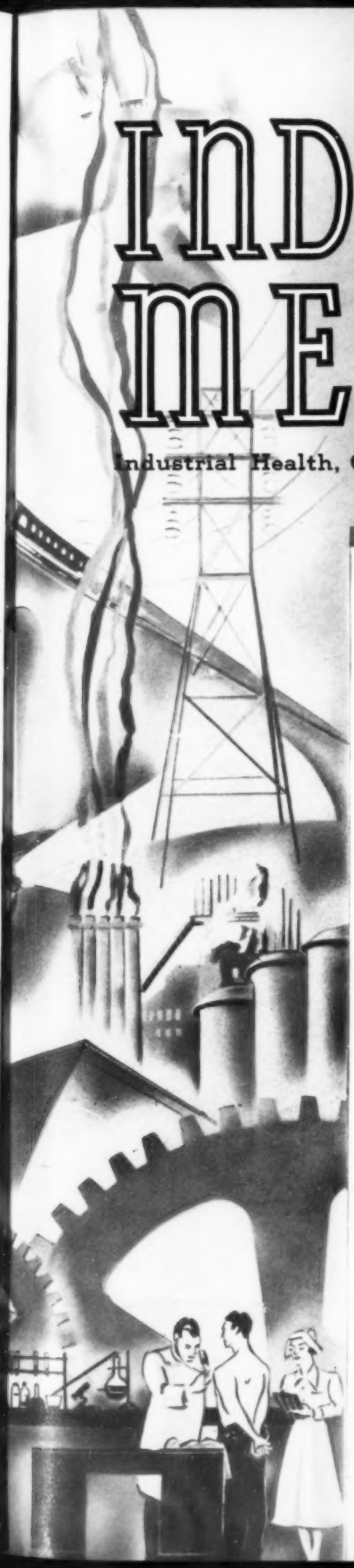

November, 1943

Benzol Poisoning
— Method for Control —

Heat Diseases
— Clinical Aspects —

Dislocations of the Knee Joint
— And Their Complications —

Rising Blood Pressure
— Significance as Shown by Periodic Examinations —

Hernia, Actual, Potential and Healed
— Prevalence in Defense Workers —

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— Evaluation of Disability —

Causalgia
— And Causalgia States —

Industrial Injuries
— New Trends in Treatment —

Problems of Night Work
— Influence on Health and Efficiency —

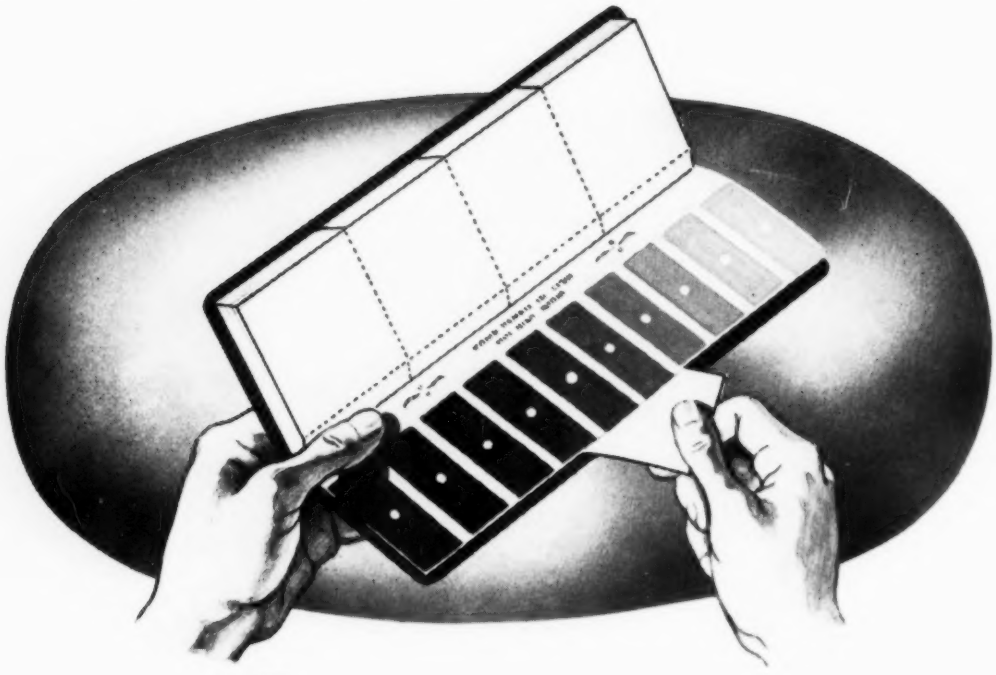
The Nurse's Part
— In the Physical Examination Program —

The Industrial Nurse's Field and Education
— A Point of View —

Political Liniment
— Colloquy on the Lyrical Possibilities of a Certain Pending Bill —

Volume 12 Number 11

Requirements in Anti-Anemia Therapy



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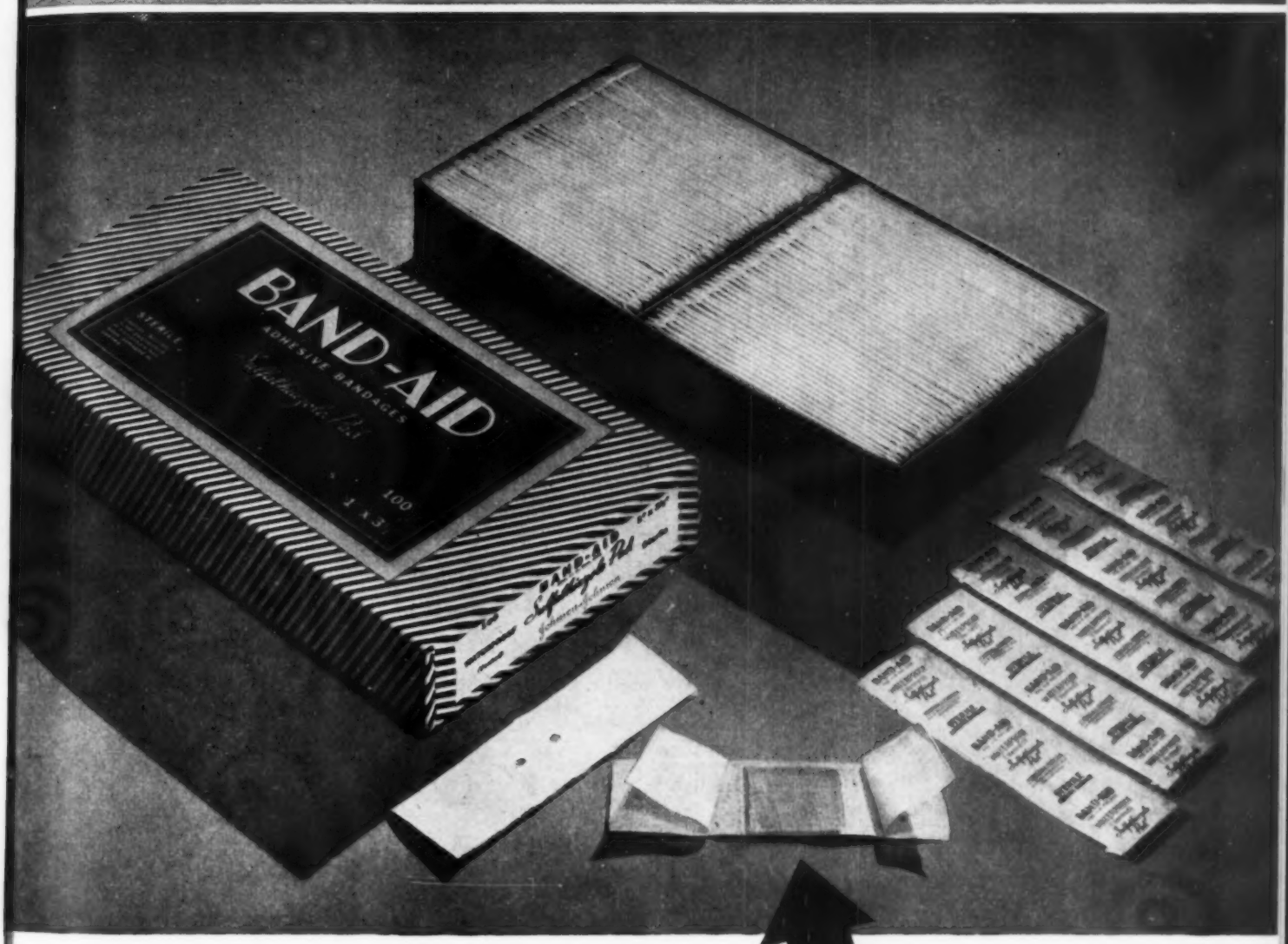

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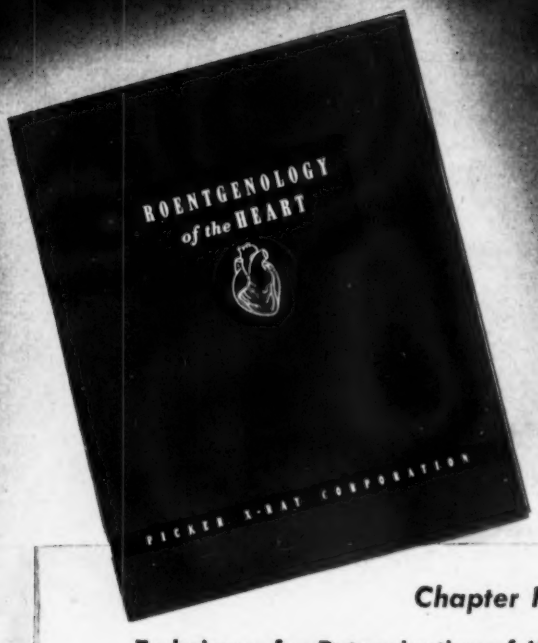

Prepared by the Medical Department of the Equitable Life Assurance Society of the United States.

Chapter Headings

Techniques for Determination of Heart Size

Interpretation of the Teleoroentgenogram

Measurement: its Methodology and Formulae

Nomograms for Area and Diameter of Heart Silhouette

Criteria for Enlargement of the Cardiac Chambers

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Reading List of Cardiac Roentgenology

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DR. WATROUS' "Method for Control of Benzol Poisoning" in a light manufacturing plant (page 721) was given at the first industrial hygiene symposium held by the American Chemical Society at a recent Pittsburgh meeting. In a field where so much has been written on prevention from a theoretical and experimental point of view, a dissertation on practical experience with scientific methods is welcome and valuable. . . . DR. HOBLER (page 724) discusses "Causalgia" and post-traumatic pain syndromes, or causalgia states, not uncommon in industrial and military surgery. These, he says, "present a problem not infrequently seen, poorly understood, frequently misdiagnosed and often poorly treated." . . . DR. MEYER (page 727) emphasizes the value of the pressure ointment treatment for burns. . . . DRS. COLLINGS, SHOUDY and SHAFFER (page 728), in another relation where there has been almost an over-abundance of generalizing, reduce the matter of heat diseases to certain "clinical entities with definite symptoms which result from exposure to excessive amounts of heat and which present a rather definite syndrome." They submit the careful and authoritative analysis of 437 cases. . . . DR. MURRAY (page 730), in still another area of generalization, produces figures which well sustain his conclusion that, as a cause of lost time, back strains would seem to be getting more attention than they deserve. . . . DRS. COYER and WIDDER (page 731) offer a study of the prevalence of hernia in laboring defense workers which is stimulating in its implication of the general prevalence of hernia and strongly suggestive of the advisability of discovering its presence on a pre-employment basis. . . . WHEN DRS. CUBBINS, CALLAHAN and SCUDERI write about knee injuries, the fact itself is an event. Their "Dislocations of the Knee Joint" (page 732) is an article to be read, digested, carefully preserved and often referred to. . . . THE literature study

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on "Occupational Injuries Attributed to Volatile Solvents" (page 734) is the subject of editorial comment (page 754). . . . THE injunction to cleanliness, in "Soap versus Industrial Dermatitis" page 739) is one that can not be too often repeated. The need for cleanliness is continuing and ever new; as the authors remind us, the statements of years ago are still true and true again. In INDUSTRIAL MEDICINE for June, 1939, DR. OSCAR LEVIN emphasized that "the simple routine of frequent bathing by the worker as well as regular laundering of his clothing would abort many a troublesome dermatitis." The present article reaffirms the importance of personal hygiene in the preventive therapy of industrial skin affections. . . . DR. NATHAN S. DAVIS, III, is quoted in "Ten Years Ago" (page 751). In INDUSTRIAL MEDICINE for November, 1933, he wrote on "Cardiovascular Disease and Industry." Here (page 738) he applies to periodic physical examinations the method of blood pressure analysis developed by DR. FOULGER for the medical control of industrial exposure to toxic chemicals (see INDUSTRIAL MEDICINE for April, 1943). In September DR. DAVIS was recipient of Mississippi Valley Medical Society's Distinguished Service Award for 1943. . . . WHILE admitting the public health implications of industrial medicine and industrial nursing, DR. LEGGO (page 793) points out that there is still a great deal which does not belong to public health but, essentially, only to industrial medicine and nursing. He speaks from his own knowledge, as he is one of the comparatively few physicians now in public health who has had extensive actual experience in industrial medical practice. His very interesting and timely comment is by way of being both editorial and opening article in the "Industrial Nursing" Supplement. . . . REPRINTS of this Supplement may be had for the asking.

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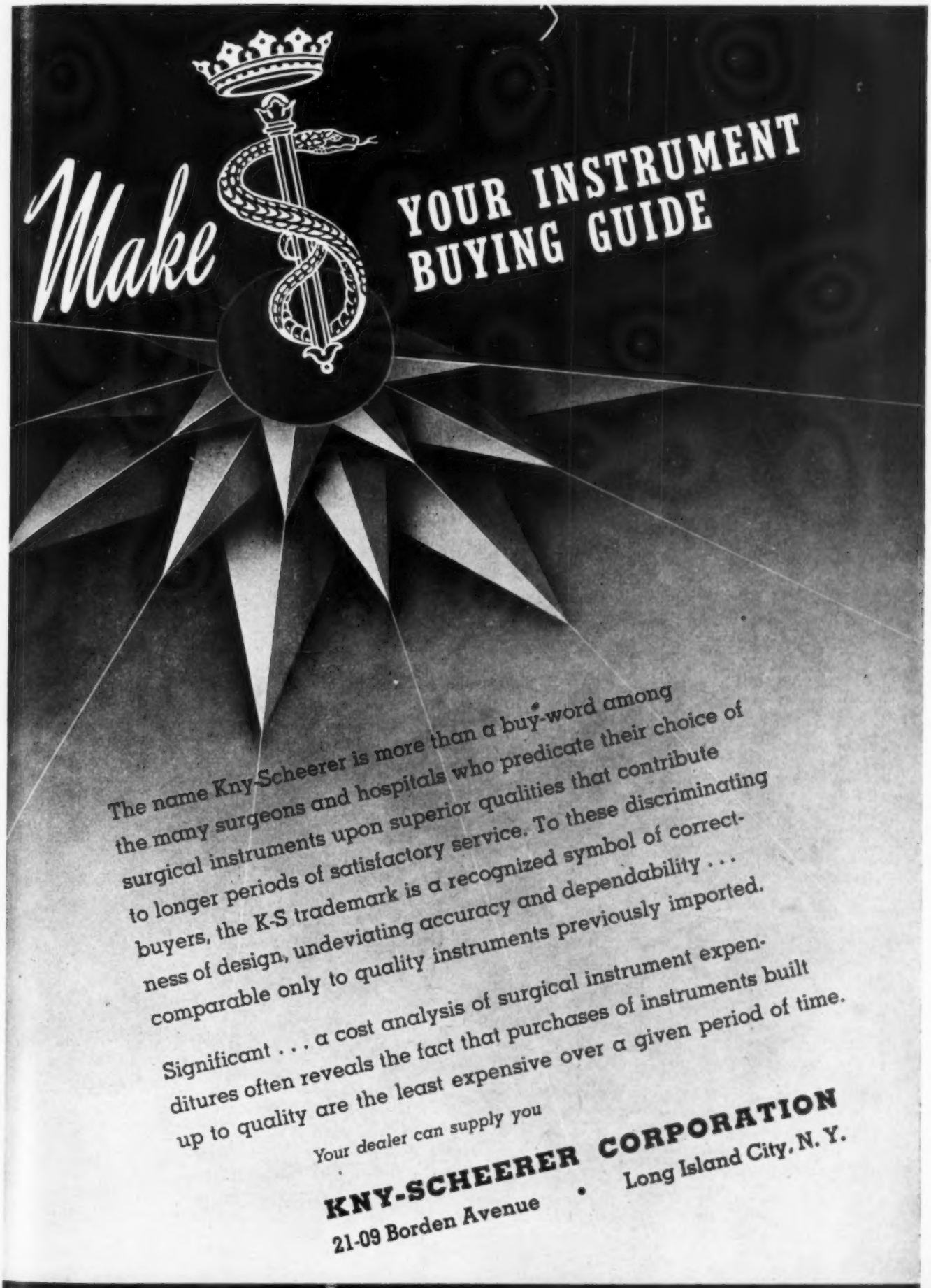
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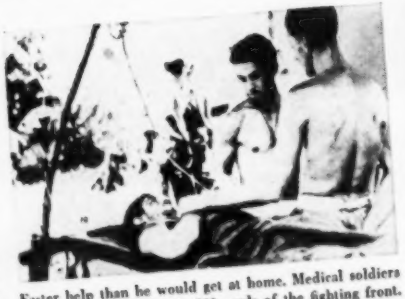

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DR. CASSIUS H. WATSON, medical director for American Telephone & Telegraph Company since 1915, retired October 1. DR. MELVILLE H. MANSON, medical director for New York Telephone Company, has been named to succeed him.

CAPTAIN WAYNE L. RITTER, former Indianapolis physician, has been promoted to the rank of major, and is now in charge of the development of health and safety measures in the defense plants in the state of Mississippi.

—*J. Indiana State M. A.*, October.

DR. A. W. IDE, Chief Surgeon of the Northern Pacific Beneficial Association Hospital in Saint Paul and of the Railroad east of Mandan, North Dakota, retired October 1, after 38 years of service. DR. B. J. DERAUF, assistant surgeon at the Saint Paul hospital since 1938, succeeded him.

DR. MORRIS FISHBEIN, editor of the *Journal of the American Medical Association*, says the Federal government has used the shortage of doctors and dentists as propaganda to pave the way for socialized medicine.

—*Chicago Daily News*, October 8.

A GROUP of prominent industrial physicians from Toronto were the guests of DR. C. D. SELBY, Medical Consultant, General Motors Corporation, for dinner at the headquarters of the Society, September 24. WYMAN D. BARRETT, M.D., President; C. K. HASLEY, M.D., Chairman of the Society's Industrial Health Committee; WM. P. CHESTER, M.D., Chairman of the Society's Section on Corporate Medical Practice, and many industrial physicians of Detroit joined DR. SELBY in welcoming the guests. There were 39 Doctors of Medicine in attendance.

—*Detroit Medical News*, October 11.

AN ADVISORY COMMITTEE to the Division of Industrial Hygiene of the State Department of Health has been appointed by GOVERNOR DWIGHT H. GREEN. This committee will be of assistance to the Division in advising

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MORE than 300 members of the American College of Physicians discussed problems of war medicine at their annual regional meeting last month. DR. LEROY SLOAN, Chicago, northern Illinois governor of the group, was general chairman. Speakers at the dinner included REAR ADMIRAL E. C. WHITE, inspector of the medical department of central naval districts; COLONEL PAUL HOLBROOK, Washington, D. C., of the office of the air surgeon, army air forces; BRIGADIER GENERAL JAMES BAYLIS, commanding general at Camp Grant; DR. ERNEST E. IRONS, Chicago, president-elect of the American College of Physicians; DR. HERMAN KRETSCHMER, Chicago, president elect of the American Medical Association, and DR. CHARLES H. COCKE, Asheville, N. C., first vice-president of the American College of Physicians. The region comprises Illinois, Indiana, Michigan, Iowa and Wisconsin.

JOSEPH SHILEN, M.D., Director, Pennsylvania Bureau of Industrial Hygiene, announces that his Bureau has added to its staff, DOCTOR EDWARD ASTON, Kingston, Pennsylvania, Dentist, and MISS DORIS HARTSON, Pittsburgh, Nutritionist. These two additions are full-time positions to promote the activities of their professions in Industrial Health.

DR. SAMUEL C. BEACH, Industrial Medical Inspector, Illinois Division of Industrial Hygiene, died July 31, 1943, following complications from a fractured hip which he sustained earlier this year. His passing was a great loss and is deeply regretted by his associates and countless friends.

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Pneumococcus (Diplococcus pneumoniae)	2,000 million
Streptococcus (hemolytic and non-hemolytic)	2,000 million
Hemophilus influenzae	2,000 million
Neisseria catarrhalis	2,000 million
Staphylococcus, aureus and albus	2,000 million

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IN "Community Action for Post-War Jobs and Profits," a publication of the U. S. Department of Commerce: "This booklet was written because the U. S. Department of Commerce believes unreservedly in the free enterprise system. Upon the business firms of the average town will fall the task of assuring jobs for our fighting men and workers at the end of the war. The businessmen of each town must be prepared to accept this challenge."

INDIANA University announces the arrangement of courses in Industrial Hygiene for nurses to be given simultaneously in five cities in Indiana during the first semester of 1943. The courses have been planned cooperatively by industrial nurses, the Indiana State Board of Health, and the Nursing Education Staff of Indiana University. The classes will meet weekly for 15 weeks, and on completion, two hours academic credit will be given.

—*Industrial Hygiene*, September.

MEDICAL meetings are essential, as essential in wartime as in peace, even more so. Physicians, military and civilian, need medical meetings, for it has been well said that "it is important that medicine not be frozen for the duration," and that "we must preserve and disseminate advances in medicine as never before."

—Announcement of Southern Medical Association Meeting, Cincinnati, November 16-18, 1943.

THE average length of life of the American people has increased by alomst one-third since the beginning of the century, according to the *Statistical Bulletin* of the Metropolitan Life Insurance Company. Expectation of life at birth in 1941 was 64.36 years—a gain of more than 15 years since 1901. As a result of the current favorable health situation, about 60% of the large crop of babies now being born will live to attain age 65, while in 1901 only 40% would have been expected to attain that age.

—*Ohio State M. J.*, October.

EACH society reported that the program was very interesting, instructive and worth while. The secretary of the Virginia Peninsula Academy of Medicine reported that "the subject matter was too limited to the majority of doctors who are

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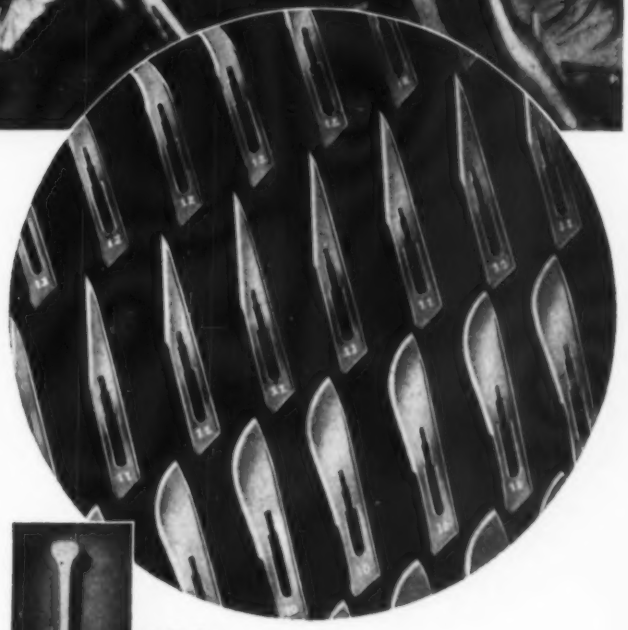

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not doing any industrial work in this area. It seems that the meeting would be more profitable if held solely for the men doing industrial medicine." It was generally agreed, however, that under present conditions the program was too long for the doctors who are working under wartime pressure. It was suggested that future programs be confined to a dinner and evening session.

—From Committee on Industrial Health report on Institutes of Industrial Medicine, *Virginia Med. Monthly*, October.

INCREASED war production has jumped industrial accidents to an estimated 2,500,000 — more than a third over the 1939 level. Secretary of Labor Frances Perkins states that more than 2,000 workers suffer disabling injuries in manufacturing plants every day. And disease is given new holds by crowded living

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TO provide an organization, not for pecuniary profit, in which all agencies and societies, both medical and lay, concerned with the problems of industrial health can hold membership and can meet together in conference for the study, discussion and careful consideration of all industrial health problems and procedure; to engage in scientific research to determine the cause, nature, prevention and cure of diseases and injuries of occupations; to assist in establishing and supervising industrial health clinics to serve small industries; to establish and maintain hospitals which will furnish facilities for the care, treatment and study of occupational injuries and diseases; to make surveys of industrial medical services and recommendations for their improvement; to solicit, receive and administer funds for any purpose that will advance and/or improve industrial health; to establish undergraduate and/or post-graduate courses in industrial medicine and surgery and/or to cooperate with medical schools and industriess in maintaining such courses; and to use all those means, which from time to time, may seem wise, for the advancement of industrial health.

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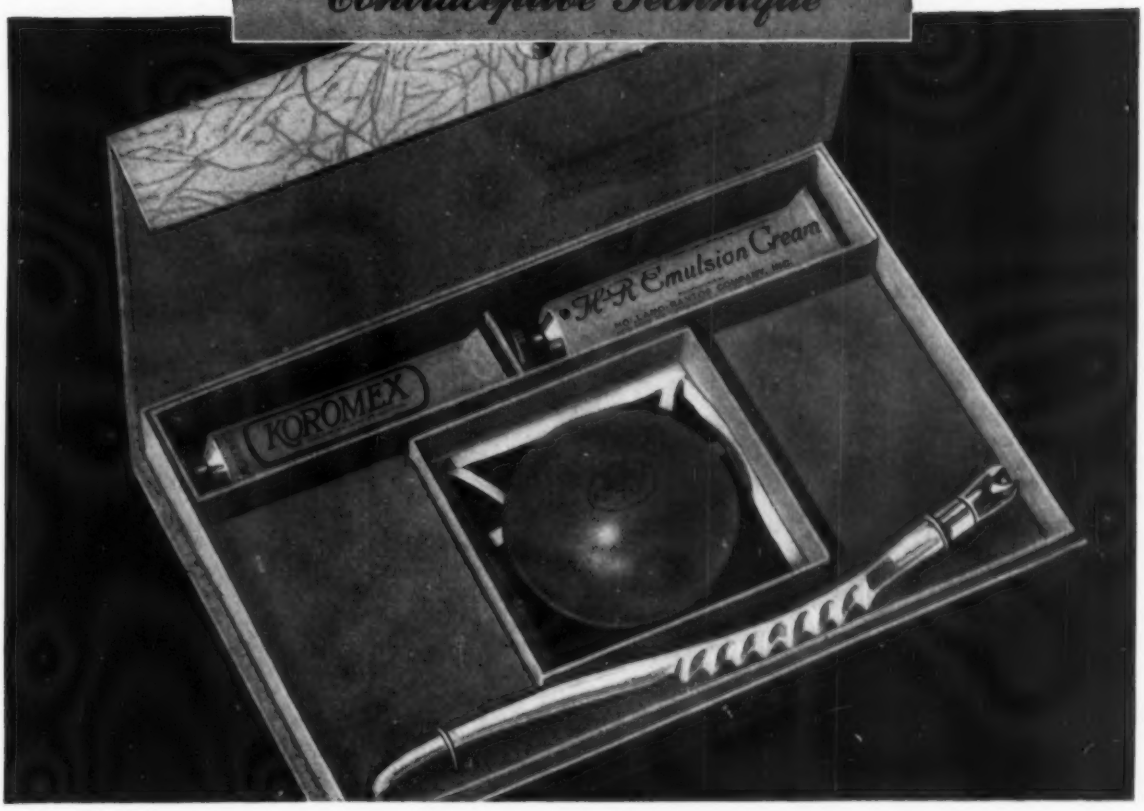

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conditions and relaxed sanitary standards. To meet growing war needs for nurses America will need 359,000 nurses next year—100,000 more than are now available. Of this number 66,000 would go to the military services, 293,000 to civilian practice.

—*Science News Letter*, August 28.

DR. GEORGE A. PETERS, Dental Consultant in the Illinois Division of Industrial Hygiene, is beginning a dental survey of three industries in which the nature of the work may possibly have direct effect on the dental health of the workers. These industries are cement manufacture, the bakery industry, and confection making. It will be recalled that some years ago the Division of Industrial Hygiene, U. S. Public Health Service, included dental examinations in several of its studies, such as radium dial painting, and in surveys of fur cutting, pottery, coal mining, metal mining, non-ferrous mining and smelting industries.

SIMMONS COLLEGE is offering an evening course in industrial nursing, with MISS CATHERINE R. DEMPSEY, president of the American Association of Industrial Nurses, as director. The program is open to graduate nurses and those who have been employed in industrial plants, and furnishes a background for future courses in industrial hygiene, personnel problems, workmen's compensation and similar subjects. The course will carry college credits.

PRESENT and post-war trends in health and medical care for industrial workers were the subject of a symposium at the annual joint meeting of the Medical Society of Queens County and the Queensboro Tuberculosis and Health Association, September 28. Participating in a panel were W. P. JACOB, president of the General Bronze Corporation of Long Island City and vice-chairman of the National Association of Manufacturers' committee on industrial health; LOUIS HOLLANDER, president of the New York State Congress of Industrial Organizations; DR. LEONARD GREENBURG, director of the Division of Industrial Hygiene, New York State Department of Labor; DR. NATHAN MILLMAN, assistant surgeon U. S. Public Health Service, and DR. CLARENCE D. SELBY, medical consultant, General Motors Corporation.

—*New York Times*, September 26.

Chemical Warfare Conference

THERE has just been concluded at the Huntsville arsenal a meeting of medical men and industrial safety officials which, from all reports, will have far-reaching results in the Army and Navy research in the field of medical industrial hygiene. For two days, a group of the industrial medical officers and consultants connected with the Chemical Warfare Service, the Ordnance department, and the Navy Research Council met and conferred at the arsenal. The conference was called by the Surgeon General's office, U. S. Army, under the chairmanship of LIEUT. COL. A. J. LANZA, chief of the medical industrial hygiene division of the S.G.O. "This conference," according to MAJOR A. M. LAZAR, M.C., and head of the arsenal hospital, "was very illuminating and beneficial, and has brought out many divergent points in the treatment of plant workers, and the medical management of the several CWS industrial plants and depots. Information was exchanged informally. The methods of treatment at the different arsenals were pooled and commented on by the consultants. The freedom of these conferences and the extreme interest evoked will, I am sure, lead to further such collaboration between the medical departments of the Chemical Warfare Service."

—*Huntsville, Ala., Times*, September 22.

In Kentucky

AN INCREASE in occupational disease cases among Kentucky workers was reported at the State Health Department today as an educational program designed to stem the rise, got under way. The larger number of workers in industries makes for more disease cases, but an added factor is the lack of protective equipment available because of shortage of critical materials, MAJ. W. E. DOYLE, Bureau of Industrial Hygiene director, explained. Biggest "headache," he added, is to be found in the incidence of skin diseases. That he attributed in part to the use of wartime substitute ingredients, particularly in solvents, cutting oils, lacquers, paints and thinners. One plant in the state reported 45 occupational disease cases for August, 34 of them skin diseases.

—*Louisville Times*, September 15.

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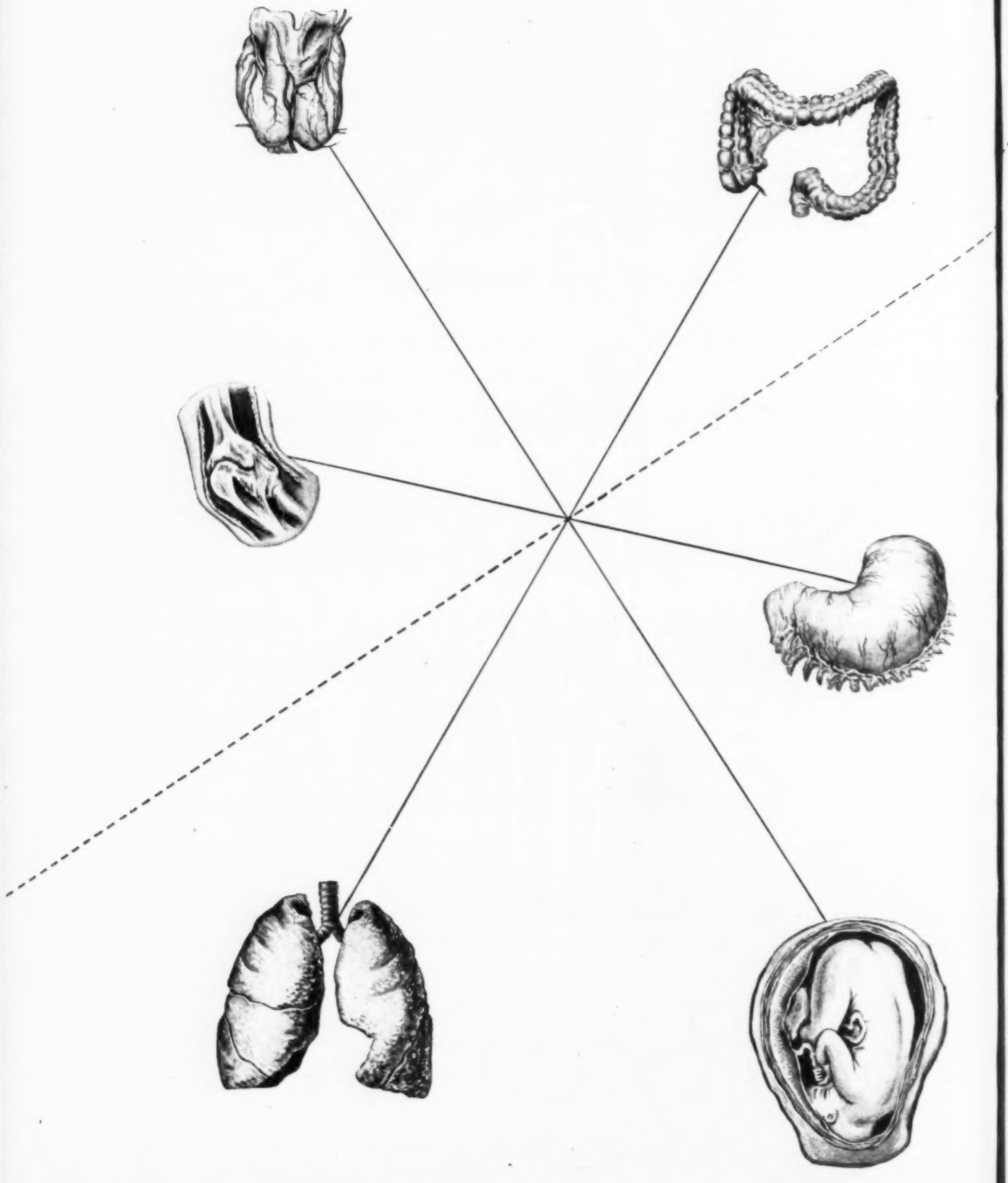

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COMMENT and OPINION

AS A NATION we are not as well fed as we once believed. Physicians and health officers must recognize that here is a whole new sphere of responsibility in the field of preventive medicine as great as or greater than the field of sanitation or control of communicable diseases.

—From "Nutrition in Preventive Medicine," by W. H. SEBRELL, M.D., in *J.A.M.A.*, October 2.

BACK IN 1943, when shiftless, ne'er-do-well John Smith had been attracted by high wages into taking a job finally and had worked at the war-busy ABC Manufacturing Company, he strained his back slightly but with no loss of time. Now, in 19+, he is again out of work, and out of funds. Whatever wages he managed to save have been dissipated—he has reached the end of his unemployment benefit payments. As is characteristic of this type of person, Smith suddenly remembers his back strain. On his own, or with the help of other unscrupulous, better-informed advisers, he starts action to collect compensation from his former employer. Of course, by this time the seriousness of his injury has been magnified considerably. Complications, etc., developed which cost him wage loss and medical expense. All fraudulent, naturally, but who or what is to prove them so? *The ABC Manufacturing Company had better be able to supply such proof, satisfactory to the industrial insurance commission or board — or it stands a very good chance for financial loss. Many such claims might very possibly be reflected in a higher insurance rate.*

—From "Coming Fraudulent Claims," by GEORGE E. LEEPER, in *American Mutual Magazine*, August, 1943.

Occupational Disease Claims

A SUMMARY of occupational disease claims filed during the year 1942 in Ohio, namely 5498, establishes a record for the state. This was an increase of about 61% over 1941. Dermatitis accounted for about 60% of the claims. Marked increases appeared in claims for tenosynovitis, bursitis and blisters. There was only a slight increase in the lead poisoning claims, 97 as compared to 90. Silicosis was responsible for a slight increase, 310 claims as compared with 268 for 1941. It is known, however, that on investigation, some of these claims were found to be due to conditions other than definite silicosis. Of these 310 claims, only 145 were allowed for compensation. Foundries had the greatest number of silicosis cases, with ceramics next. Of interest were 16 claims for beryllium poisoning from two plants manufacturing beryllium oxide. The illness produced by the inhalation of the dust or fumes, resembles influenza. Some of the workers appear to be more susceptible than others, and develop a form of disabling bronchitis, and, in severe cases, an edema of the lungs or a pneumonia. Among the toxic poisoning claims were those for aniline, arsenic, brass or zinc, benzol, cyanide, chlorinated hydrocarbons and toluene. Many cases of dermatitis and systemic poisoning have been reported in the shell loading and munitions plants in the use of and manufacture of TNT, amatol and tetryl.

Milk

FEWER absences due to illness were recorded at the Eastman Kodak Company as a result of supplemental feeding with bananas and milk, and by such reduction of absence both productivity and earning capacity of the worker were helped. A 30% reduction in accidents, fewer absences from illness, general improvement in employees' health, and increased production were among the benefits reported at the Thermoid Plant, Trenton, New Jersey, when one-half pint of milk was given free to each of 1,500 employees during a five-minute recess each day. Statistics of the National Safety Council show that the most dangerous times of the day for accidents occur about three hours after work begins, both in the morning and in the afternoon, and thus the serving of milk provided renewed alertness when it was most needed.

—*Pure-Pak News*, September, 1943.

"Rapid-Fire Discourse"

DR. MORRIS FISHBEIN, editor of the AMA (American Medical Assn.) *Journal*, was criticized for his opposition, and that of the AMA, to Federal health insurance last night, on the American Forum of the Air broadcast over the Mutual Network from WOL in Washington. In the same round-table discussion of Post-war Health Planning, Henry Kaiser, West Coast shipbuilder, urged that business adopt his seven-cent-a-day health plan for industrial workers as a model in plants throughout the country. The highlight of the discussion was a sharp clash between Kaiser and Fishbein on the subject of full health insurance reminiscent of their personal conflict at the Pepper Senate Committee hearings on medical manpower last year. Controversy centered around the Wagner-Murray-Dingell Bill for Social Security, now before Congress, which includes provision for health insurance. The bill was called "a good groundwork on which to plan a better system of medical care" by Dr. Ernst Boas, chairman of the New York Physicians Forum for the Study of Medical Care. Boas deplored the "blindness of the organized medical profession to the social needs and trends of today," and said it was "unfortunate" that the organized medical association "is bitter in its opposition to this bill and what it stands for." When Fishbein warned of the danger of "selfish encroachment of politics, either within or

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Antiseptics and Their Action, R. M. Freeman: *Industrial Medicine*, February, 1940.

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We developed the vegetable "flat-type" scrubber and we introduced the now famous Safety Trio features (1) pH below 10, (2) No Free Alkali, (3) low buffered alkaline salts.
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without the medical profession," Robert J. Watt, international representative of the AFL, remarked that he "omitted any mention of the insurance monopolies or the section you represent in the AMA. When it comes to politics, Dr. Fishbein and the professionalized leadership of the AMA are no slouches," Watt said. Although it was a panel discussion, at the end of the hour it was apparent that Watt, Boas and Dr. Kingsley Roberts, Director of the Medical Administration Service, a research organization, were lined up in favor of the Wagner-Murray-Dingell Bill; Fishbein and Dr. Louis Bauer, chairman of the Medical Service Division of the AMA, opposed it, and Kaiser opposed both stands in favor of "prepaid group medicine" modeled on his own plan in the shipyards, which, he said, "can spread from industry to all of our city and rural populations."...THEN to Granik's "American Forum of the Air" where a multitude assembled and saw John Henry Lewin who helped Thurman Arnold in the trial and with him some badinage about being a witness. And Henry J. Kaiser was receiving eleventh hour consultation from Dr. Sidney Garfield — so old Pepys said it reminded him of a coach saying to the quarterback — "Remember, when you're in trouble, punt!" To which Kaiser answered: "Kaiser never punts, he is always in there bucking the line." Next for one hour the forum which was an interchange of rapid fire discourse on medicine and its affairs, Henry Kaiser agreeing that government should stay as far as possible out of medical practice but insistent that medical organization take leadership in setting up prepayment plans with group practice.

—First part from *P.M.*, New York City, September 22; second part from "Dr. Pepys' Diary," in *J.A.M.A.*, October 2, 1943.

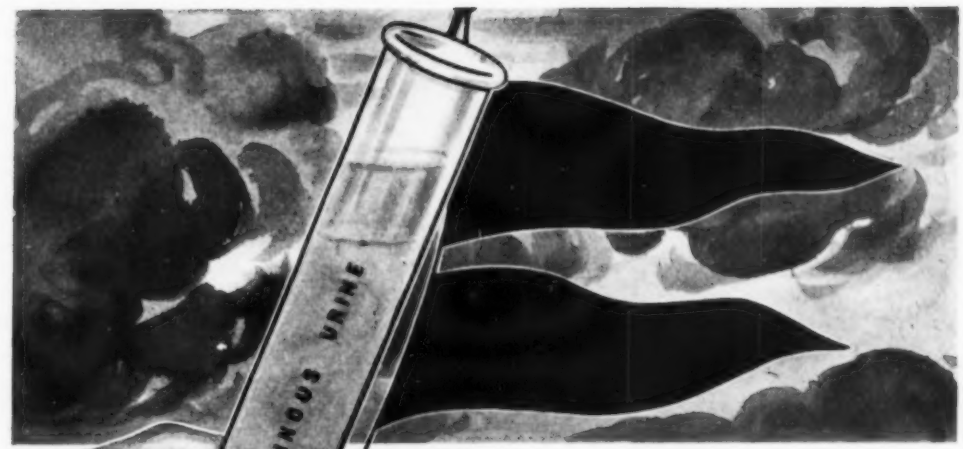
Neoprene

RECOGNITION by the medical profession that rubber-induced dermatitis is most frequently allergic and due to sensitization is comparatively recent. Though the rubber industry was convinced of this years ago by its own observations, medical journals for a long time insisted that dermatitis connected with rubber was caused by irritant chemicals, mainly accelerators and antioxidants, used in rubber manufacture. This attitude attributed to rubber manufacturers a degree of carelessness or ignorance which, had it existed, would have been commercial suicide. As a matter of fact no different chemicals are used in manufacturing neoprene from those used with natural rubber. When dermatitis occurs with any worker using natural rubber gloves, the gloves should not be excluded as a cause. All dermatitis cases should be considered potentially serious and carefully diagnosed to reveal the possibility of allergy or sensitization, instead of assuming that dermatitis is due to direct irritant action. There is, so far, no known instance of dermatitis or of sensitization due to neoprene (Du Pont's synthetic rubber). On the contrary every surgeon reporting, who has changed to neoprene surgical gloves because of dermatitis from natural rubber, has stated that the dermatitis disappeared and has not reappeared. There has not been a case of dermatitis in our own factory among the workers with neoprene.

—From "Importance of Early Diagnosis of Dermatitis of Workers' Hands, by L. F. PAGEL, Pioneer Rubber Company.

Committees on Workers' Health

THE Michigan State Medical Society and the United Auto Workers have agreed to set up committees to confer on medical and health problems of Michigan's industrial workers, newspapers report. Members of the committee appointed by the state medical society include Drs. Robert L. Novy, Detroit, chairman; Gustave L. McClellan, Detroit; Patrick L. Ledwidge, Detroit; Earl F. Carr, Lansing; Samuel W. Donaldson, Ann Arbor, and Otto K. Engelke, Ann Arbor. The formation of the United Auto Workers C. I. O. committee had not been completed at the time of this report, but tentative plans indicated that George F. Addes, secretary-treasurer of the U. A. W.-C. I. O., will be ex-officio chairman. The arrangement was worked out after an appeal had been submitted



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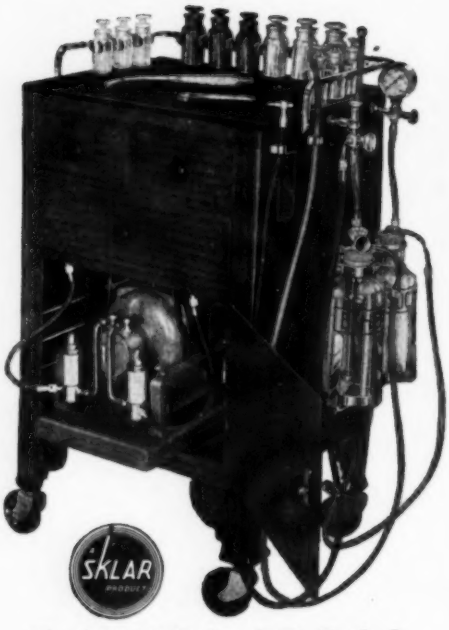

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to the medical society by the union for a list of medical and surgical specialists who would accept patients referred by the union's own medical department.

—*J.A.M.A.*, October 2, 1943.

Pennsylvania Health Committees

THE Committee on Industrial Health initiated an eight weeks' course on industrial health and hygiene, which was very well attended, and at its conclusion certificates were given to 65 who had attended and done efficient work. This was the first course of this kind given under the auspices of a local county medical society and the program drew praise from many state organizations, also from the A.M.A., for the manner in which it was presented and the extent of the subjects discussed. This councilor district is well aware of the importance of this subject at the present time in our country and was glad thus to contribute to the general improvement of the war effort. (First Councilor District, Philadelphia County.) . . . THE Industrial Health Committee is active, and one of its members has taken over a position with the Vultee Aircraft Corporation. Other industries which have not had physicians on a part-time basis seem reluctant to engage a regular physician and prefer to have their injured employees treated by their family physicians. The War Record Committee is active and is rapidly gathering information concerning men in the armed forces. (Second Councilor District, Lehigh County.) . . . THIS district is largely rural, with some industrial concentration in only two counties. Nevertheless, under the spirited and able leadership of DR. JOHN P. HARLEY, co-chairman of the State Society's Commission on Industrial Health, a plan for any county medical society's approach to the problem of physician-management-labor cooperation in industrial health programs has evolved. This plan is in operation in a number of industries and has received widespread recognition. Adequate medical care is being furnished to all communities in the district because of our members' willingness to ignore personal health and comfort and think only of responsibility and opportunity to serve. In this connection one observes the difference between the performance of the medical profession and that of certain other groups whose labor is essential to the war effort. There is no serious complaint from any community regarding the adequacy of medical care. The Seventh Councilor District has supplied physicians to the armed forces from communities where the effective physician-population ratio has always been less than that of the one physician to 1500 population. Therefore, figures showing the percentage of physicians in service from any county society are meaningless. (Seventh Councilor District, Cameron, Clinton, Elk, Lycoming, Potter, Tioga and Union Counties.)

—From "Reports of Individual Councilors," 93rd Annual Session, Medical Society of the State of Pennsylvania, in *Pennsylvania Med. J.*, September, 1943.

"Overtime" Exhaustion

IN THESE days of war production, when practically every manufacturing plant in the nation is engaged in war work, the question of manpower is a most important one. We simply do not have enough of that commodity, so other expedients must be resorted to, even to the extent of employing thousands of women for work in departments that hitherto had been deemed man's domain. We have discussed "women in industry" on many occasions, but our present concern has to do with the hours of employment of both sexes. Our newspapers daily carry ads in their want-ad sections, some of them of the display type, and in most of which the item "time and one-half for overtime" is prominently displayed. And this "overtime" thing is quite an allurement. Most folk want to make money, and if by the exercise of an extra day, plus an added hour or two to the regular day's work, this pay check may be materially increased, too many of these employees proceed to do that very thing. Physicians in the industrial section of Indiana, as well as in other states, are quite familiar with these matters. We all see men and women who rapidly are becoming physically exhausted. A man of over 50 recently came to our office for an eye examination. He had been ordered to have correcting lenses inserted in his safety goggles. The man appeared to be tired—he looked tired; he acted as if that was his chief ailment. On questioning him

Industrial Dermatitis Costs $7,000,000

MILWAUKEE — Seven million dollars a year in lost working time is the estimated cost of industrial dermatitis. The number of people suffering from skin diseases, says O. A. Fried, chief sta[illegible]

Reduce COSTLY HOME FRONT *Casualties!*

Dermatological conditions frequently incapacitate workers. A careful cleansing regime is indicated as an aid in preventing contact dermatitis or in minimizing its severity.

Schwartz[1] states "Harsh skin cleansers have frequently been found to be the actual causes of occupational dermatitis which before investigation seemed to have been caused by chemicals manufactured or handled... The damage to the skin caused by such harsh cleansers not only renders the skin more vulnerable to the action of irritant chemicals, but in many cases is the sole cause of the dermatitis."

Acidolate* Skin Cleanser was developed to meet the need for a detergent which will remove cutaneous soil without inducing irritation. Acidolate contains no alkali, soap or abrasives, and leaves the skin with a feeling of soft coolness.

Write for samples and literature.

* Acidolate is the registered trademark of National Oil Products Co.

1. Schwartz, Louis: Public Health Reports 56:1788-1790, 1941.

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Skin Cleanser

ACIDOLATE DIVISION
NATIONAL OIL PRODUCTS CO.
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A FORM FOR EVERY USE

For wounds . . . burns . . . lacerations . . . abscesses . . . compound fractures . . . surgical and obstetrical procedures . . .

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Sulfanilamide U.S.P. Sulfathiazole U.S.P.
In ½ oz. insufflator tubes. (Nozzle attachment available at slight additional cost.)

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For use in peritoneal cavity or wherever complete sterility is necessary. Contains 5 grams (77 grains) sterile sulfanilamide in fine granular form.

★ **Hydrophilic Base Ointment:**
Sulfanilamide 5% and 10%
Sulfathiazole 5% and 10%
Sulfatoin Emulsion Base Ointment (Sulfanilamide 10% and Allantoin 2%)

Full information on Flint, Eaton Sulfonamide Products available on request.

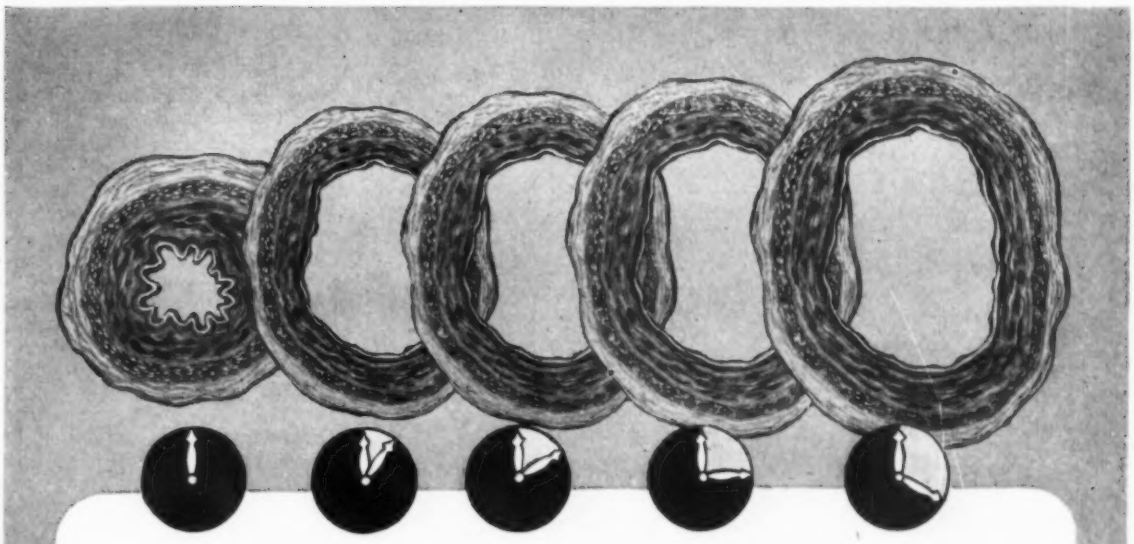
FLINT, EATON & COMPANY
DECATUR • ILLINOIS

we learned that he had been working 10 to 11 hours per day seven days per week. He was a skilled machinist, presently engaged in work that requires minute attention and concentration. The man was tired; what he needed more than anything else was a respite from his daily toil, a complete relaxation. For him a vacation was "out"; the equipment he was then fabricating was a vitally important factor in the conduct of the war; it had to be produced, and he was the only man available for his particular kind of work. A young woman employed in another essential industry, much of whose work was typing, complained of being tired, dizzy, subject to headache, et cetera. On questioning we learned she had been doing overtime work; for almost two weeks she had been at her typewriter for some 10 or 11 hours a day, with but an occasional short rest period during those hours. A man, the head of a vital department in a large war industry, came in for treatment and declared that he was "all in." We learned that for more than 72 hours he had been working. From the actual fighting front he learned that a huge war machine manufactured by his plant had a vulnerable spot—not a large one, but nevertheless vulnerable. By staying on the job for about three days he and his crew "licked" the thing; the instrument of death was no longer vulnerable in that small spot. We might cite scores of similar cases, involving those in executive capacities and those in minor roles in our plants. Fatigue is a danger sign regardless of what form of work we may engage in, and he who heeds that warning does so wisely. Neglect of these frequent warnings means certain disaster, and it is the man of medicine who must interpret these signs. Especially is this important in the man of middle age; we again refer to one of the best medical talks we ever heard, "The Heart of the Man at Fifty." These people come in complaining of dizziness, headaches, shortness of breath, perhaps a backache, fluttering of the heart, or just a "tired-all-over" feeling. They may tell you they get up in the morning about as tired as when they go to bed. *These folk are sick.* They may not have a fever; they may not have definite pains of a diagnostic sort, yet they are *sick.* They must have medical attention. It is true that their pay check is two or three times the amount it was in pre-war times; it is true that they can now indulge in such few luxuries as remain on the market and perhaps buy a new and larger home, but the fact remains that these folk are potential invalids, whether it be from a heart condition, a pulmonary affair, or from some other cause. These workers must be told to slow down; their employers must be counseled properly. Already organized medicine has recognized these things and our Industrial Health committees are doing a good job of solving the many problems presented. Money, after all, is not the most important thing. It will require a lot of time and work ere these committees can do their job, but it is being done and being done well. We are very proud of the part the Indiana State Medical Association is playing in this work; few states have a better Industrial Medicine set-up; few states have a program so advanced as ours. Our committee has gone into the byways, one might say. They not only discuss and act on such things as plant fatigue, plant working conditions, et cetera, but they make a study of other highly-important matters, such as "how soon one should return to work after an appendectomy," "how soon one should return to work after having had a course of sulfa drugs," et cetera. All of these things are mighty important and enter into any composite discussion of the many problems presented by "overtime" work.

—Editorial in *J. Indiana State M. A.*, October.

Robert Quillan Says:

IF YOU PREFER having a fair warning before the storm hits, go first to your doctor to have your blood pressure checked and then write to one of your senators for a copy of the Wagner-Murray Senate Bill 1161. He will send you one without charge, and you will find it a remarkable document well worth reading. The chief author of the bill is the same German-born Senator Wagner of New York who gave us the law that "protects the rights of labor," but denies the boss even the right of free speech. And if all goes



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Brand of Mannitol Hexanitrate

in Hypertension

Due to the chronicity of hypertension, the object of medical treatment is to produce gradual and prolonged vasodilation, with a resultant steady lowering of the systolic and diastolic pressures.

A non-toxic nitrate derivative which meets the requirements of gradual, extended action is mannitol hexanitrate, available for clinical use under the name of Nitranitol.

The prolonged vasodilating action of mannitol hexanitrate as compared with other hypotensors is best shown by the following table based on results of the work of Matthew, as summarized by Sollman. (Manual of Pharmacology, Philadelphia, W. B. Saunders & Co., 1942, p. 518)

DRUG	DOSAGE	EXTENT OF FALL (mm. Hg Systolic Blood Pressure)	REACHING AND RETURNING FROM MAXIMAL FALL / MAXIMAL FALL MAINTAINED
Spir glyceryl nitratis	2-3 mins	25 - 30	
Sodium nitrite	2-3 grs.	32	
Erythrityl tetranitrate	½-1 gr.	35	
Mannitol hexanitrate	1 gr.	35	

Hours 1 2 3 4 5 6 7 8 9 10 11 12 13

Nitranitol is prepared in the form of scored tablets, each containing ½ gr. mannitol hexanitrate. Average dosage is one or two tablets every 4 to 6 hours. Available at prescription pharmacies in bottles of 100.

NITRANITOL
WITH PHENOBARBITAL

A combination product containing ½ gr. mannitol hexanitrate and ¼ gr. phenobarbital. Scored tablets in bottles of 100.

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OUR STERILIZER IS ALWAYS Shiny and Bright
BRILLIANT chrome plating of Pelton portable exteriors, and cabinet trim, should be preserved by polishing regularly with a soft cloth, preferably flannel.
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well, the bill will be passed by the next Congress. Its purpose is to provide more social security, including medical care. And, as usual, it levies a tax—this time a whopper. It will add $12,000,000,000 a year to our annual tax burden—12 times the total cost of government when dad was a youngster. It will take 6% from your pay envelope, up to $3,000, and another 6% from the boss. From the self-employed—the doctor, farmer, merchant—it will take 7% up to $3,000, or $210 a year. Three-fourths of the money will be used to extend the benefits of social security, but one-fourth, or $3,000,000,000, will be turned over to the surgeon general, and he will be the absolute czar of American medicine, empowered to provide free medical and hospital care for 110,000,000 people. He will control all hospitals and decide which ones can operate and how much they shall charge. He will tell doctors where to practice and how many patients they may have and how much they may charge. He will also decide which ones may call themselves specialists. (The bill generously permits each of us to choose his own doctor, but not if the one of our choice already has his allotted number of patients.) There are many other remarkable provisions in the measure, but this is enough to give you the idea. Three billion dollars is a lot of money. It is enough to hire every doctor in America at a salary of $5,000 a year; to hire every bed in every privately operated hospital every day in the year at the rate of $5 a day; to pay $2.50 a day every day in the year for each bed in government-owned hospitals; to spend over $250,000,000 a year for medicine and supplies, and still leave $500,000,000 for political jobholders. If your doctor seems a little absent-minded and peevish these days, he is thinking about his future when politicians control the practice of medicine.

—*Indianapolis Star*, August 5.

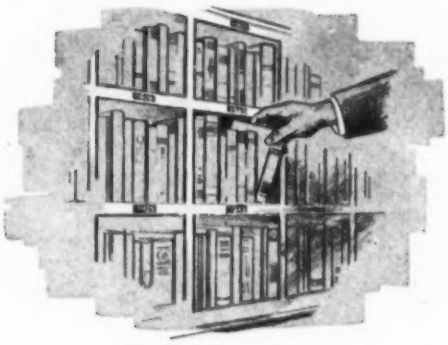
Dietary Consultation

IN THIS study of 85 private patients the prevalence of dietary deficiencies was compared before and after dietary consultation, in order to determine the effectiveness of consultation and to study the food habits of the patients. In all but eight cases the dietary pattern was improved after consultation. In spite of a second dietary check-up, however, there were still many dietary deficiencies, although the number had decreased considerably. Interestingly, the patients who were underweight were the most cooperative of all those studied. Although this study was done on only 85 patients, we are convinced that dietary consultations, with checkups from time to time, are advisable in formulating a good basic diet and in substituting good food habits for faulty ones.

—From "Study on Effectiveness of Dietary Consultation," by HERBERT T. KELLY, M.D., and MYRTLE SHEPPARD, A.B., in *New England J. Med.*, September 30.

Three Stage Reactions

I HAVE repeatedly noted three major stages in a patient's reactions to his injuries and treatment. The first occurs during the early phases of his convalescence when he is appreciative of the relief which the physician's ministrations have afforded him. During this phase he recognizes the progress which he is making, favorably appraises the doctor's every effort in his behalf, cooperates in his convalescence, and readily acknowledges the relief from subjective symptoms and functional impairment which he is experiencing. During this phase there is no conflict between his interests and the physician's aims; therefore, the doctor is his friend, and all is well. Unfortunately, this happy situation sooner or later changes, because eventually the healing period ends, the part time light work is replaced by full time regular work, and the patient becomes conscious of his remaining defects (whatever they may be) in their effect upon his ability to carry on. At this point some resentment toward his employer, his immediate superiors on the job, or possibly fellow-workers who caused his injury begins to develop, and there may even be a suspicion that he did not make as complete a recovery as he should have. This attitude of mind soon reflects itself in his efficiency, and difficulties with his job and associates arise. This leads to a state of



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Available in a ¼% or 1% solution in 1-oz. bottles for dropper or spray; and as a ½% jelly in collapsible tube with applicator.

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FOR LOCAL THERAPY

While systemic measures are indicated in neuralgia, myositis, and arthritis, local therapy must also be provided, not only because of its valuable contribution, but to satisfy the patient's demand. For this purpose, Baume Bengué possesses several advantages. Its contained menthol and methyl salicylate induce intense active hyperemia, thus aiding in removing local metabolites and lessening pain and inflammation. A significant amount of salicylate is absorbed through the skin, thus augmenting the influence of orally administered analgesics.

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more or less dissatisfaction with practically everything and everyone with whom he has dealt since he was hurt and is frequently nurtured by friends, relatives, and fellow employees. The patient is out to get recompense for what he has suffered, and he looks to his physician to take up the cudgels in his behalf. But at this point, the physician appears too coldly objective to suit him, he does not share the patient's sudden change of heart, and is more bent on rehabilitating the patient than rewarding him for his trouble. So the whole doctor-patient relationship changes. All kinds of new symptoms creep back into the picture, and try as the doctor may to assuage them, they persist with increasing variety and vigor. The doctor is no longer the trusted friend; he cannot go all out for the patient in his new guise, and eventually estrangement of the two ensues. The doctor is now out, and the medicolegal battle is on. A lawyer and new doctors enter the scene, a hearing is scheduled before the Commission, and the treating physician is an outcast. How often have many of us appeared at Commission hearings to learn what scoundrels we have been! Our kindly ministrations to the sick and injured were devices of the devil, our surgical skill and zeal not only failed to improve but made the patient worse, long before he was able to leave the hospital he was thrown out, and finally he was forced to work before he could even reach the job, much less perform it. But, with all the abuse, the record usually suffices to establish the humanitarianism of our efforts, and ere long the award comes through, and the case is closed. Forthwith, the ills of the patient rapidly diminish, his adaptation to his environment improves, and he has forgotten the petty and ulterior impulses which motivated him. To his surprise, he can again carry on as you had told him he would, and he gradually recognizes that you were his friend after all. This ushers in phase three when gratitude returns and the patient may even reappear with a fellow workman or a member of his family who has been injured, or in some other way he expresses his appreciation for what you have done. Often months or years later he may even return as a patient himself, ready to go through the same process all over again.

—From "Estimation of Disability in Compensation Cases," by CHESTER C. SCHNEIDER, M.D., in *Wisconsin M. J.*, September.

Work and Health

IN A STUDY published by the British Association for Labor Legislation and issued as a white paper, Dr. H. M. Vernon, a distinguished authority on industrial hygiene, drives home for the nth time the point that the human being is not a machine and that there is a critical relation between working hours, efficiency and health. The point is apt to be forgotten in a war when minutes count in producing tanks, airplanes and 10,000 other items with the rapidity demanded. Production falls and absenteeism is rife when hours of work are too long. Time and a half for overtime is no solution of the problem. In Great Britain as well as in the United States more and more women are working in factories. Women have home duties to perform even though they work for a living. The result has been a reduction in the hours devoted to sleep, according to Vernon. The Minister of Labor in July, 1940, recommended a return to more reasonable hours for women, but there is still a wide gap between his recommendation and British practice. Vernon emphasizes what we have discovered in this country—emphasizes the sickness that follows overwork and absenteeism. He says that half the absenteeism in British industry is accounted for by sickness. The sickness rate of men about doubled after the 70-hour week was imposed. When the 65-hour week was adopted there was a marked improvement. Among women the 60-hour week led to many cases of nervous breakdown. There is also the matter of the accident rate. The employment of inexperienced young men and women partly accounts for a notable increase, but it has been established that too long working hours are also a cause. Workers know all this. Many absent themselves altogether when work is too hard and too long, so that a high labor turnover results. To cure this an essential work order, issued in April, 1941, forbade any worker to leave his employment and prohibited his dismissal (except for gross breach of discipline or misbehavior) without the permission of the national service officer. The immediate effect was a reduction in the wastage of labor. Nevertheless, some companies found ways of evading the order. Vernon suggests that for the emergency men should not work more

An Important Announcement
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THE discovery, production, and clinical evaluation of the new chemotherapeutic agent, Penicillin, constitute a signal advance in medicine's relentless warfare against disease.

Penicillin has proved to be extremely effective in the treatment of infections produced by the hemolytic staphylococcus aureus, the pneumococcus, hemolytic streptococcus, and gonococcus. In general, Penicillin is not effective against gram-negative organisms, with the exception of the gonococcus and meningococcus. It has not been found effective in the treatment of subacute bacterial endocarditis.

In vitro studies indicate that Penicillin will prove to be effective against a variety of other organisms. However, clinical experience to date has been limited primarily to infections caused by the aforementioned organisms, in conformity with the predetermined objectives of the Committee on Chemotherapeutic and Other Agents of the National Research Council.

The production of Penicillin is a difficult and delicate microbiologic procedure. Because of the difficulties involved in producing even limited quantities of this substance, it has been necessary to exercise strict control of its distribution, in order that supplies might be available for essential investigation. The Committee on Medical Research of the Office of Scientific Research and Development therefore appointed the Chairman of the Committee on Chemotherapeutic and Other Agents of the National Research Council to supervise the distribution of all stocks available for clinical research. At the present time, the Chairman of the latter Committee is supervising allocations of Penicillin in accordance with Order No. M-338 of the War Production Board.

Intensive research begun in the Merck Research Laboratories in the autumn of 1940, and carried on continuously ever since, is devoted to the development of methods by which this remarkable substance may be produced in ever-increasing quantities. Every effort is being made to expand production further for the benefit of our Armed Forces and, as soon as adequate quantities can be made available, for our civilian medical needs.

★ *Copies of the recently published brochure,* Penicillin Merck—Its Action and Uses, *containing full color and halftone illustrations, are available on request.*

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"the most devastating of all sickness"

. . . for safe, soothing symptomatic relief
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PINEOLEUM* PLAIN—widely recommended for the stimulating and mildly antiseptic value of its camphor (.50%), menthol (.50%), and oils of eucalyptus (.56%), pine needles (1.00%), and cassia (.07%)—incorporated in a protective base of bland, highly refined liquid petrolatum—for use as spray or drops.

PINEOLEUM* WITH EPHEDRINE—contains (in addition to the standard formula) .50% ephedrine, thus furnishing a safe degree of vasoconstrictive action where desired—in same form as above.

PINEOLEUM* EPHEDRINE JELLY—in handy nasal applicator tubes, for greater convenience plus ease of application.

* Reg. U.S. Pat. Off.

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than 60 hours a week, because production declines if they do. For women he fixes a maximum of 54 hours and for girls between 16 and 18 a maximum of 48 hours. Youths may work up to 54 hours and boys and girls of 14 and 15 for not longer than 44 hours. Some of the blame for British conditions falls on workers themselves. Even when actual working hours are right a wearisome amount of time is spent in traveling between the factory and the home in crowded buses and street cars. Many of the younger British workers fill two or more jobs. Thus colliery boys work on farms in the evenings and factory girls wait in restaurants or serve as ushers in motion picture theatres. The most alarming symptom noted by interviewers was mental lassitude in those who never relaxed and never enjoyed any recreation.

—*New York Times*, July 18.

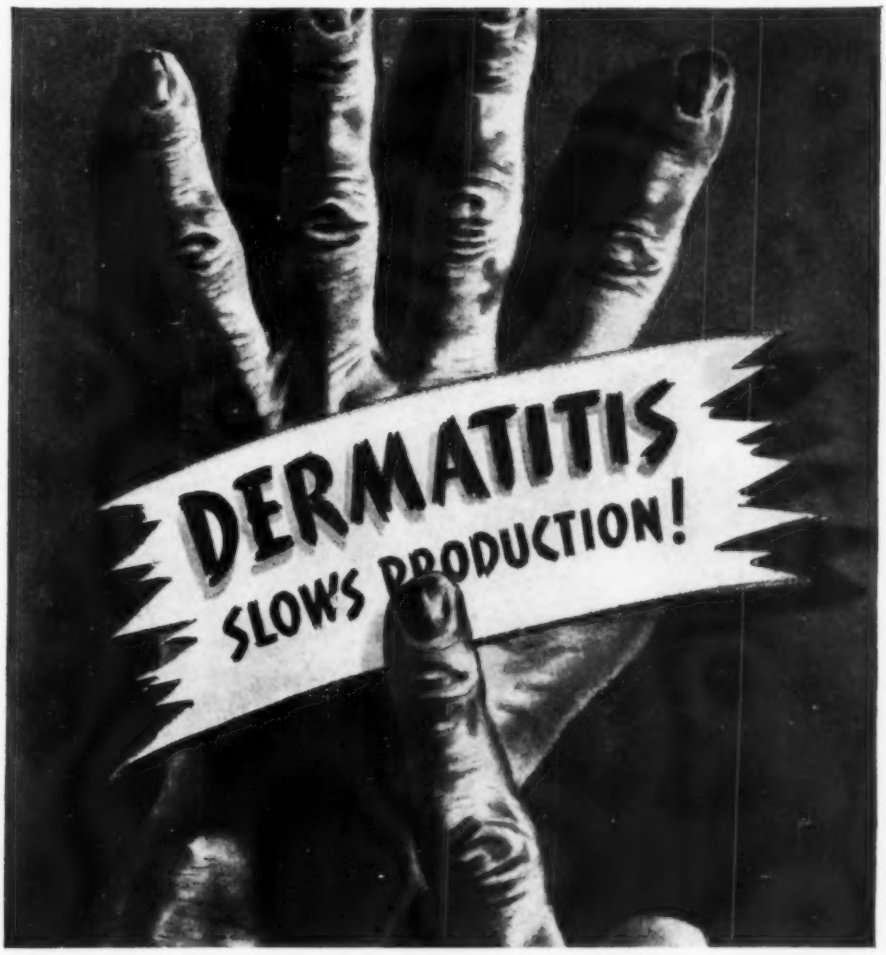
Supplementary Vitamins

DRS. BARBARKA, FOLTZ, and IVY in a recent article discussed the relationship of the intake of the vitamin B complex and of the output in trained subjects. They state that factual evidence indicates that nutritional deficiency is prevalent in many parts of the country and that perhaps one-third of the American population is eating a diet which is not adequate in all respects. Their experiments were based on four students existing on a controlled, adequate diet and who had been trained on the bicycle ergometer for at least nine months; these subjects were then placed on a diet consisting principally of vitamin B complex. During the 82 days on the deficient diet, the subjects developed irritability, easy fatigability, lack of pep, anorexia, and increased leg pain during work periods; but they did not develop any objective signs of vitamin B deficiency. The urinary excretion of thiamine and riboflavin dropped to a low level, but the blood thiamine remained normal. The authors conclude that diets deficient in vitamin B complex in trained subjects decrease the work output; that early mild states of malnutrition, with no objective evidence of deficiency disease, do prevent maximal work efficiency; that diets with about one-third of the recommended daily requirements of vitamin B complex produce objective symptoms of easy fatigue, irritability, lack of pep, anorexia, which symptoms disappear, with work output returned to normal or better within a few days following supplementation of vitamin B complex; and that vitamin B complex supplementation added to a vitamin B complex inadequate diet restores work output to efficient levels. Obviously, the use of natural foods to bring an inadequate diet to the required level is the ideal solution to the problem and official nutrition committees of organized medicine have stressed this fact; they have also decried the indiscriminate use of vitamins by the public. However, as long as the prevalence of inadequate diets of such a large number of workers in industry exists and until a nationwide plan of adequate diets becomes workable, discriminate vitamin administration to industrial workers on an inadequate diet is a sound policy.

—From the Industrial Health Section of *Illinois M. J.*, September, 1943.

Burn Treatment, OCD

THE Medical Division of the Office of Civilian Defense has revised its pamphlet, "Treatment of Burns and Prevention of Wound Infections," to incorporate new techniques developed within the past year. The recommendations are based on recent directions of the Committee on Chemotherapeutic and Other Agents and the Subcommittee on Burns of the Committee on Surgery of the Division of Medical Sciences of the National Research Council. Originally drawn up by these committees for the armed forces, the recommendations have been modified to adapt them to the problems involved in the treatment of civilian casualties. Recommendations for the use of sulfonamides are accompanied by the observation that these drugs must be used more cautiously in the treatment of civilian wounds than is necessary in the care of military casualties, for the following reasons: "The injured may include individuals of all ages and with various types of pre-existing disease, instead of a selected



LAN-O-KLEEN* for washing hands is a basic start—a powdered soap of proven value in helping to prevent dermatitis in war plants from coast to coast. It is a powdered soap of *mildly* alkaline reaction compounded with granular corn-meal which has been impregnated (by our exclusive process) with lanolin, an oil almost identical to the natural oils secreted by the glands of the skin. Lanolin helps nature to maintain a normal, healthy skin condition.

PROTECTIVE CREAMS act as an external protection when rubbed on the exposed skin. These creams help guard the workers from most of the wide variety of skin irritants which may lead to dermatitis. A West specialist will help you determine which of the many West Protective Creams are best suited to protect the workers against the specific irritants handled in your industry.

WESCOL* A special high power disinfectant, in your cutting oils helps prevent oil dermatitis, otherwise easily spread from one worker to another in the recirculation of your cutting oils and cooling compounds that may contain harmful bacteria.

SULPHO HAND CLEANER

In some occupations, chemicals are encountered which tend to remove normal fat of healthy skin and make it more susceptible to dermatitis. For those who have naturally dry skin and for those who must in the course of their work dip their hands in solvents, West offers this new special type of hand cleanser.

West Sulpho Hand Cleaner is made of sulphonated vegetable oil combined with a wetting agent plus a small amount of a chemical cleaner. Due to the nature of the product, it has an almost neutral pH. It is specially designed *not to defat the skin.*

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THE *enormous frequency of minor burns* make them as important in the sum total of human suffering as the relatively infrequent critical third-degree burns.

You will find UNGUENTINE a valued aid in the common minor burns of daily practice, because:

1. ***Unguentine is analgesic.*** For prompt relief of pain —a soothing local anesthetic.
2. ***Unguentine is antiseptic.*** It fights infection with sustained contact and action.
3. ***Unguentine promotes healing.*** It aids regeneration, usually without scar formation.

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Norwich*

*Reg. U. S. Pat. Off.

group of healthy young males. The possibility of toxic effects is therefore greatly enhanced. Moreover, it is assumed that in civilian injuries, hospitalization will be possible in a relatively short time, whereas in military operations such is not always the case. This usually makes it possible to postpone all consideration of chemotherapy until the injured have been hospitalized. It is then possible to administer sulfonamides with better safeguards and to consider such contra-indications as other pathological conditions or known sensitivity to individual drugs. The dangers of dehydration can also be better prevented or overcome under such circumstances." The emergency care of burns is outlined. The most notable change in the OCD pamphlet is the withdrawal of the recommendation of the use of ointments or jellies containing tannic acid in the first aid treatment of burns. The new advice given is that when definitive care cannot be carried out within two hours, the patient should receive sufficient morphine to relieve pain (not less than one-half grain, except in patients with lung and bronchial damage, the very old or the very young); and the burned surfaces should be covered with sterile boric acid ointment or petrolatum over which one or two layers of gauze of fine mesh (44) is to be smoothly applied. Over this dressing thick sterile gauze or sterile cotton waste is to be placed and the entire dressing is to be bandaged firmly but not tightly. Substitution of jelly containing 5% sulfathiazole in water-soluble base, which is supplied in the OCD carrying case A for Mobile Medical Teams, is permissible. The discussion of definite treatment of burns has been expanded to stress the necessity for administration of large amounts of plasma, and the pamphlet describes "open" and "closed" treatment for burns. In the new directions, additional emphasis is placed on masking of both the patient and his attendants, in order to minimize the danger of secondary infection.

—*Ohio State M. J.*, October.

Uncle Sam, M.D.

FROM the doctor's point of view this freedom (the freedom of the choice of your physician) puts joy into what is often a hard and difficult task. When the patient pays you the greatest of all compliments, and we can conceive of no greater compliment than to put one's life unreservedly in your hands, no night is too dark or weather too bitter for you to render what service may be necessary. When, however, a third party or agency sends you, service after regular hours is apt to be grudgingly rendered, and neither the patient nor doctor is satisfied. This is true in large industrial plants where industrial medicine is misconstrued to include care of the employees when they are sick at home. Usually the employee calls in his own physician in preference to accepting the free services of the company-paid doctor. We also have a familiar example in the coal-mining districts. In order to get any doctor it is necessary to import one and put him on a salary. In addition, the company equips his office in the best manner possible, employs a nurse, and builds a hospital, yet neither patient nor doctor is satisfied with the arrangement. Let us see what the government proposes to do in regard to this fifth freedom, for after all, actions are more easily understood than words. Congress has recently appropriated $4,400,000.00 to provide maternity and infant care for the families of enlisted men in the armed forces. The program is already in operation in many states and provides, on a relatively small scale, an example of what will happen if the all-comprehensive Bill S 1161 becomes a law. The Children's Bureau administers this fund through the state health agencies that are approved by the chief of the Bureau. The state health agencies must work in strict accord with the rules laid down by the Children's Bureau. In the case of maternity care it works as follows: "The wife enters identifying data on the application form and takes it to the physician (private or clinic) of her choice. The physician completes the form and forwards it to the state director of maternal and child health (or his deputy), requesting authorization to provide the medical care needed at the rates of payment established by the state health agency ($35 for delivery). Physicians participating in the programs agree to provide the authorized services without charge to the patient or her family. . . . The state health agency reviews the request for authorization

Rapid and Sustained REDUCTION of stomach hyperacidity

When *Creamalin* is taken, acidity in the stomach is reduced promptly. This is followed by a slow and persistent antacid effect.

With *Creamalin* no secondary rise in secretion of acid gastric juice occurs. Moreover, there is no danger of producing alkalosis.

Creamalin often induces rapid healing of peptic ulcer when employed with an ulcer regimen.

Creamalin Tablets are convenient to carry and easy to take—and they are palatable.

Supplied in bottles of 50 and 200 tablets.

CREAMALIN

Reg. U. S. Pat. Off.

Brand of Aluminum Hydroxide Gel

TABLETS

WINTHROP CHEMICAL COMPANY, INC.

NEW YORK, N. Y.
WINDSOR, ONT.

Pharmaceuticals of merit for the physician

BUILT ON EVIDENCE†

Nine years of continuous research provide the clinical background for *Ertronization* as the method of choice in arthritis management.

Numerous favorable reports on ERTRON from leading arthritis clinics, universities and private practice have appeared in the literature.

As evidence resulting from ERTRON research accumulates, this important form of therapy constantly becomes more and more firmly established.

†*Complete bibliography and mode of administration available on request.*

ERTRONIZE THE ARTHRITIC

To *Ertronize* the arthritic patient, employ ERTRON in adequate dosage over a sufficiently long period to produce beneficial results. Gradually increase the dosage to the toleration level—maintain this dosage until maximum improvement occurs.

Ertronize early and adequately for best results.

ERTRON* is the only high potency, electrically activated, vaporized ergosterol (Whittier Process). It is the product which numerous investigators have repeatedly shown to be effective and nontoxic.

Ethically promoted

ERTRON *Parenteral* — For the physician who wishes to reinforce the routine oral administration of ERTRON by intramuscular injections, ERTRON *Parenteral* is now available in packages of six 1 cc. ampules. Each ampule contains 500,000 U. S. P. Units of electrically activated, vaporized ergosterol (Whittier Process).

Supplied in bottles of 100 and 50 capsules. ALSO NEW 500 CAPSULE BOTTLE.

ERTRON is made only in the distinctive two-color gelatin capsule.

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RELIEF in BOTH

..PRURITIC SKIN CONDITIONS

..PAINFUL HEMORRHOIDS

NUZINE OINTMENT

Soothing, analgesic and protective, Nuzine Ointment offers an excellent source of relief in industrial and other dermatologic conditions, as well as in congested hemorrhoids.

In 1-oz. tubes with special hard rubber applicator—anatomically correct design; easily removed label; at $4.00 per dozen. Also in 1-lb. jars at $1.50.

FORMULA	
Guaiacol	1.66
Oxyquinoline Sulphate	0.42
Zinc Oxide	2.50
Glycerine, C.P.	1.66
Lanum (Anhyd.)	43.76
Petrolatum	50.00

Samples for trial on request.

NUMOTIZINE, INC.

900 NORTH FRANKLIN STREET • CHICAGO, ILLINOIS

and usually within 24 hours notifies the patient, physician and hospital whether authorization is granted. Each case is referred to the local health department for antepartum and postpartum public health nursing services." Her freedom of choice of a hospital narrows down to a hospital that has a ward service and, in addition, is willing to furnish ward service for 90% of its cost. The doctor of her choice must attend her for half his usual fee and, in addition, must write to this "state health agency" and get permission to do so. Shades of Leon Trotsky! What is American Medicine coming to?

—From an editorial, "The Fifth Freedom," in *Virginia Med. Monthly*, October, 1943.

The Safety Congress

NUMBER one seasonal offender as a cause of absenteeism in industry is the common cold, DR. HAROLD EARNHEART, medical director of Swift & Co., told the members of the meat packing, tanning and leather industries section. "But it seems there is not a great deal to be done about it," deplored DR. EARNHEART. "We frequently think in terms of sending all employees with beginning symptoms of corzya (common head cold) off the job, but I doubt if any industrial physician has nerve enough to advocate such a practice at this time." ... A WARNING against the use of Japan wax was sounded today by DR. LOUIS SCHWARTZ, appearing at a congress meeting of textile representatives He is medical director and chief of the dermatitis investigations section of the U. S. Public Health Service. He described tests made on 200 persons who wore patches of material to determine whether the fabric finishes were irritating. SCHWARTZ suggested that such tests should be run for all new textile finishes before they are placed on the market.

—*Chicago Daily News*, October 5.

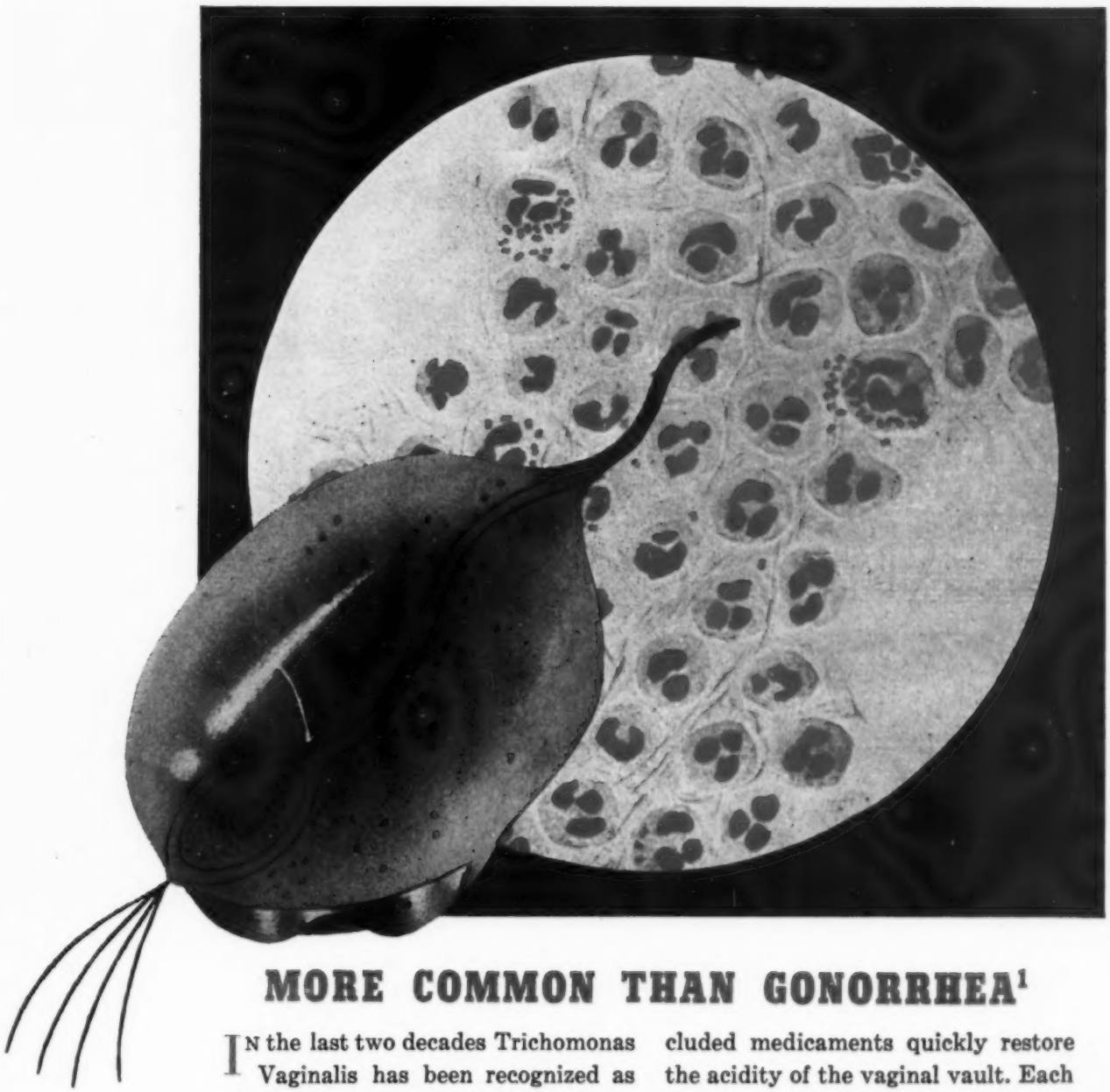
Placement

IN 1936 I visited the Obukh Institute for Occupational Diseases, in Moscow, so named after one of the pioneers in the field. It is one of over 40 research institutions operated by the trade unions for the protection of labor against occupational accidents and diseases. While I was visiting the place I noticed an attractive young woman coming out of a doctor's office, and, since she did not look like a patient, I inquired what she was doing here, whereupon the doctor gave me her case history. She came from a worker's family. Father and mother, brothers and sisters were all working in the same plant, and when her time came she joined the factory as a matter of course. After a while it was found that her work at the factory was very poor, and instead of firing her the factory sent her to the Obukh Institute for examination to find out why she was doing poor work. She was examined by a physician and by a psychologist; a number of tests were made, and it was found that she was a very intelligent girl but that she had no manual ability. She was asked whether she would like to be a schoolteacher. Illiteracy had been reduced from 70 to less than 10% and the country needed teachers. She was startled at first, because the thought of being a teacher had never occurred to her. But she loved children and accepted the suggestion enthusiastically. The institute made arrangements to have her admitted to a normal school. There was no tuition to be paid, and she could count on a stipend. The day I saw her she had come back for a checkup. Her record showed that she was doing excellent work at the school and that she was very happy. The country was to have a good teacher instead of a poor factory worker.

—From a letter entitled "Russian Search for Brains," by HENRY E. SIGERIST, in *Baltimore Sun*, September 29.

The Trends

IT IS becoming increasingly apparent that the trends now gathering momentum are directed toward some form of national health service as an integral function of the state. Proposals of this nature—by governmental post-war planning agencies, both here and abroad, have been the subject of deep consideration, wide editorial comment, and cogent discussion. This mood has been further reflected in recent comments by various medical and non-medical writers who have penetrated with incisive clarity to the very heart of this controversial subject. It has been stated by some that the financing of this type of medical service is a socio-economic consideration, and not a medical problem. While it may be argued that financial provision for the institution of such a service is a function of the commonwealth, I am impelled to emphasize the fact that the structural character of the organization of any such type of health service is tremendously im-



MORE COMMON THAN GONORRHEA[1]

IN the last two decades Trichomonas Vaginalis has been recognized as the most prevalent of the gynecological infections. Incidence has been averaged at between 25 and 30 per cent.

VIOFORM INSERTS* (iodochlorhydroxyquinoline with boric acid and lactic acid) are offered to physicians as a time-saving, effective and economical means for combating this parasite. VIOFORM acts to eradicate trichomonas vaginalis, while other included medicaments quickly restore the acidity of the vaginal vault. Each Insert contains 250 mg. of VIOFORM, 25 mg. of lactic acid, and 100 mg. of boric acid.

VIOFORM INSERTS may be given to patients for home use, necessitating fewer office calls in these war-rushed times. In mild cases one course of ten days is recommended. More severe infections usually respond to two or three courses. Write for literature.

[1] Am. Jl. Surg., 33:523, 1936
*Trade Mark Reg. U. S. Pat. Off.

CIBA *Pharmaceutical Products, Inc.*
SUMMIT, NEW JERSEY

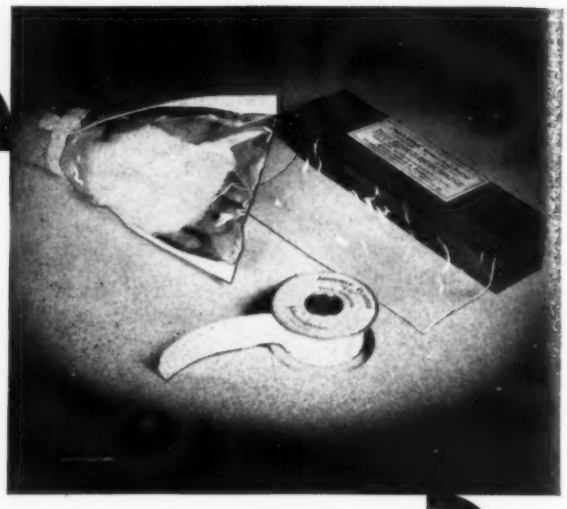
Modern application of an *Ancient* principle

IN MANY industrial injuries the infective agent is carried deep into the tissues and lies beyond reach of ordinary cleansing and therapeutic procedures.

In such cases the principle of osmosis is an all-important weapon in attacking the infections. It carries the bacteriostatic agent to the site of conflict where it acts upon the invading organism.

OSMOPAK is a potent factor in the conservative treatment of industrial traumata. It brings early comfort to the patient, checks inflammation, establishes resolution and frequently obviates the necessity of surgical intervention.

OSMOPAK is especially efficient in the management of carbuncles, boils and cellulitis.



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Modern Osmotic Pack

Supplied in 1½ pound jars

IRWIN, NEISLER & COMPANY

Pharmaceutical Manufacturers since 1886

DECATUR ILLINOIS

portant to doctors and is vitally concerned with the execution of their professional function. This entire subject must be brought into sharp focus by the light of trenchant and dispassionate thought in order to observe both the desirable, as well as the possible apprehensive aspects of the contemplated proposals.

—From the Address by BRIGADIER GENERAL FRED. W. RANKIN, to the A.M.A. House of Delegates, Chicago, June 7, 1943, published in *Kentucky M. J.*, October, 1943.

Medical Services in Industry

THE war has compelled many Ohio physicians to become interested in industrial medicine, either because of new jobs which they have undertaken or because they are substituting for someone who has joined the armed forces. With the great expansion of industry in war time effort, this all becomes much more important to the health of the community. One of the things that each of us needs who is beginning to take an interest in industrial medicine and even some who have been in the field for a while is a bibliography; just what has been written on the subject; just what should be read? What is the latest thought in regard to such problems as medical services in industry, medical departments in war industry, nutritional programs for industrial employes, the feeding of war workers? These busy days it is too time-consuming to look up this topic in the library without assistance and it is rather a new topic to many librarians. All of this makes it a pleasure to call the profession's attention to a series of Industrial Relations Digests published by the Department of Economics and Social Institutions at Princeton University. This department with the aid of the University's library experts has given us an excellent bibliography on industrial medicine by which we can at once get the very latest material, whether published in medical journals, trade journals, or magazines devoted to industrial medicine. The recommendation of various committees of medical associations on this bibliography is presented in an 11-page mimeographed folder for 10 cents. Bulletin No. 70 entitled "The Feeding of War Workers. Selected Annotated Bibliography," is a most helpful pamphlet of this kind. A copy of it can be secured for 25 cents. Then there are two pamphlets devoted to nutritional programs for industrial employes and the question of medical departments in war industry, both of which are digests of the more recent literature. They will be found most useful for work in companies which have had rapid expansion due to war orders. They are based on material received currently from a large number of representative companies and may be secured for 20 cents. It would be our thought that everyone interested in industrial medicine should get themselves on the mailing list of the Industrial Relation Section, Department of Economics and Social Institutions, Princeton, New Jersey, so that they may get these and other pamphlets which will prove most valuable to them in their day's work.

—*Ohio State M. J.*, October.

Straw in the Wind

HAVING Uncle Sam pay all the bills for medical education appears to have certain definite disadvantages, as evidenced by the following news item from the *News & Courier*, August 17, 1943: "MEDICAL COLLEGE NAVY STUDENTS GET WARNING: Navy regulations against participation in political activities were invoked yesterday to forbid further protest by navy students of the Medical College of the State of South Carolina against the passage of the Wagner-Murray-Dingell socialized medicine bill now pending in congress. A notice on the bulletin board in the lobby of the college read as follows: 'All navy V-12 students by regulations are not allowed to participate in any form of political activity or join in any movement concerning government policy. Orders of Captain Needham, commanding officer.' Captain R. C. Needham, U. S. N., retired, is the commanding officer of the naval units at the Medical College and at the University of South Carolina. It was understood last night that the students felt upset about the matter, although no com-

Can Proteins Really Be Graded?

Amino acids, the constituents of protein, are arbitrarily termed "essential" and "nonessential." Essential are the ten which cannot be synthesized in the body; nonessential, those that can be synthesized by combinations of the essential group.

All amino acids are found in protein foods whether of animal or plant origin. But in those of animal origin all the ten essential amino acids are present while the combination of all of them is comparatively rare in plant proteins. Hence these latter often have been termed "inferior proteins" and have been considered less important. Is such grading justified?

The function of the essential amino acids is twofold: a) replace in the tissues the "worn-out" members of their own group and enter the structure of newly formed tissues; b) aid in the synthesis of nonessential amino acids, if these are lacking. Thus the nonessential group is virtually of equal importance, since it spares the essential group from being used for their synthesis.

Hence all protein sources are of nutritional importance. This is of special significance so far as cereal-derived foods are concerned.

Cereal breakfast foods contain an average of about ten per cent of protein, their actual contents ranging from 7% to 14%, depending on the grain source from which derived. Their protein is highly acceptable to the human organism, contributing its share to growth as well as maintenance.

When one ounce (prepared cereal or its equivalent in cereals to be cooked) is served with four ounces of milk and a teaspoonful of sugar, this palatable dish presents about 7 Gm. of protein, biologically adequate through the contained milk, 33 Gm. of carbohydrate, and 5 Gm. of fat, a total of 205 calories, and appreciable amounts of B-complex vitamins calcium, iron, and phosphorus.

The presence of this seal indicates that all nutritional statements in this advertisement have been found acceptable by the Council on Foods and Nutrition of the American Medical Association.

CEREAL INSTITUTE, INC.
135 SOUTH LA SALLE STREET • CHICAGO 3

A cooperative effort to present the nutritional value of cereal breakfast foods (natural whole-grain or enriched or restored for vitamins and minerals to whole-grain values), undertaken jointly by THE CREAM OF WHEAT CORP. ... GENERAL FOODS CORP. ... GENERAL MILLS, INC. ... KELLOGG COMPANY ... NATIONAL BISCUIT COMPANY ... PILLSBURY FLOUR MILLS COMPANY ... THE QUAKER OATS COMPANY ... CAMPBELL CEREAL CO. ... ALBERS MILLING CO.

DON'T LET MINOR INJURIES BECOME MAJOR PRODUCTION PROBLEMS

NEW-SKIN is also recommended in the control and treatment of poison ivy dermatitis... as a protection against blisters, calluses, cast irritation, post-operative area infection.

This new size bottle exclusively for professional and industrial use.

Treat them quickly with NEW-SKIN ...reduce time losses from accidents

When minor injuries are treated promptly with NEW-SKIN Antiseptic Covering, loss of time is reduced to a minimum. NEW-SKIN protects cuts, burns, abrasions from dirt and dust, lessens danger of infections.

NEW-SKIN diffuses evenly, smoothly and "gives" with muscular flexation, without impairing its function.

The superiority and utility of NEW-SKIN Antiseptic Covering in protecting against contamination recommends its use in clinic, office and home.

For greater convenience and economy NEW-SKIN is now available in a new, larger . . . 8 ounce . . . bottle for professional and industrial use.

NEWSKIN COMPANY
882 Third Avenue Brooklyn, N. Y.

NEW-SKIN

8 oz. 75¢

Other New-Skin sizes at all drug stores—1 dram, 15¢ —½ oz. 30¢—1½ oz. 50¢.

ment for the press was forthcoming from them. At a meeting held Thursday night at the call of the class presidents, they had unanimously backed up the position of the Medical Society of South Carolina, a local organization, in protesting against passage of the bill, which they termed 'totalitarian,' and had made plans to enlist support of students of the 60-odd accredited medical colleges in the nation to fight the bill. Students who are in the army are not affected by the navy order, but it is expected that similar regulations will be enforced with regard to them." Those physicians who look forward to being on the governmental payroll might well consider what it could mean in curtailment of one's privileges of free speech.

—Editorial in *J. South Carolina M. A.*, September, reprinted in *Ohio State M. J.*, October, 1943.

Fascism

AFTER studying the Wagner-Murray bill we ran into a definition of Fascism. Somehow or other we have been unable to dissociate the bill and the definition, the latter of which runs as follows: "Fascism is a social system for the control of the means of production and distribution of goods and services and the lives of the people from the cradle to the grave by the state through the mechanism of a single political party which is limited in its objectives and technics only by its own authority as to what is to the best interests of the state and the people."

—From an editorial entitled "Behold Shangri-La!" in *Medical Times*, September, 1943.

Maternity Policy

A SOUND industrial maternity policy involves: (1) Avoidance of penalizing regulations, so that women will be encouraged to report their pregnancies as early as possible. Concealment of pregnancy because of fear of being required to give up employment may have serious consequences. (2) A health evaluation of every case. Such findings, and not pregnancy itself, should form the basis for any decision regarding the continued employment of a woman who becomes pregnant. (3) A job evaluation of every case and, if necessary, transfer to suitable, non-hazardous work. The health of an expectant mother can be protected and her usefulness as a worker continued if she is placed in a suitable job. (4) Periodic reports on physical condition. Such continuing health appraisal is a simple procedure and offers reassurance to employee and employer. (5) Reasonable and protective minimum prenatal- and post-natal-leave periods. (6) Job protection for a reasonable period of time. This would assist in the adequate recovery of the mother, would make it possible for her to spend a longer period of time at home with her infant, and would make for a healthier employee when she does return to work. (7) Cooperation among plant physicians, private practitioners, and public-health departments. Industrial maternity problems are part of community maternity problems and deserve the combined interest of all persons and agencies concerned.

—From "Maternity Policies in Industry," by CHARLOTTE SILVERMAN, M.D., in *The Child*, August, 1943.

Cancer Causes

THE following appeared in *Boston Record*, July 15, 1943, under the heading "Cut in Cancer Toll Possible": "Lives of 25,000 cancer victims probably could be saved every year if both the public and physicians made full use of all knowledge now available to the medical profession, DR. R. R. SPENCER, of the National Cancer Institute said today. DR. SPENCER said that there are now about 500,000 cancer sufferers in the country. To determine the effects of dust in causing cancer, the Institute placed special apparatus in nine cities. Black tar extracted from the dust was injected into mice, resulting in growth of malignant tumors. In other instances, the Institute has found that cancer apparently is due to some of the simple chemicals and compounds that form the bases of household cleaners, industrial solvents and fire extinguisher fluids." A letter asking the National Cancer Institute for copies of any papers or reports of any experimental work

In Nutritional Deficiencies

LOOK AT THE BLOOD

TRADE-MARK

The rationing of important iron-giving foods deserves serious consideration as a possible cause for existing and potential iron deficiencies for many. The authorities manifest growing concern over the ever increasing cases of anemias. Such conditions indicate that never before has it been so important to LOOK AT THE BLOOD! *Anemias of nutritional origin are effectively and economically corrected by the administration of specially prepared iron (easily assimilated ferrous sulphate—plain or with liver concentrate) incorporated in . . .*

*Hematinic Plastules**

THE BOVININE COMPANY ☆ CHICAGO

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Lessons learned at war...

FROM INDUCTION CENTER to front line dressing station, America's medical officers are utilizing the science of radiology . . . and learning countless new ways to insure the health and safety of our armed forces. Mass X-Ray examination findings, experience with mobile, battle-area equipment, time- and life-saving radiographic techniques . . . which *cannot wait for Victory* to be passed along to medical men who fight the battle for humanity at home!

We at Patterson are as humbly proud as men and women behind the battle lines can be . . . to contribute knowledge and equipment to these war-born techniques. Our production of X-Ray Screens has been increased many-fold to meet the demands of the armed forces . . . without forgetting for one moment the importance of maintaining the unexcelled quality and adequate supply of our products for the home front. Come what may, there can be no faltering in our fight to check the inception and growth of disease.

Patterson Screen Division of E. I. du Pont de Nemours & Co. (Inc.), Towanda, Pa.

Patterson Screens are available for immediate delivery

DU PONT

Patterson Screens *Light the paths of X-Ray*

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

done on the subject brought the following reply: "The International News Service dispatch from Washington which quoted us as finding cancer due to simple compounds such as industrial solvents, household cleaners and fire extinguisher fluids was apparently taken from a report submitted to Senator Bone several weeks ago. We do not have extra copies of this report, but will quote for you that part in which you will be interested. You will note that there is practically no danger to housewives or others from the use of these agents, provided the material is not ingested, and even then a single dose would not be effective in producing a tumor. It is realized that such reports as this one are often and very unfortunately misinterpreted. '*Newly discovered cancer inducing agents*—Staff members of the National Cancer Institute have found two new chemicals which will induce cancer in experimental animals. Eurathrane when used as an anesthetic has been found to induce cancer of the lung and carbon tetrachloride will produce cancer of the liver in mice. Carbon tetrachloride is a simple chemical compound used as a household cleaner, as an industrial solvent and as the main constituent of many fire extinguishers. The effect of this substance on man and on animals has been studied for the past 30 or more years but only within the last two years has its cancer producing quality become known. This is very illustrative of the complexity of the problem of causation of cancer. This finding alone, however, is not nearly as important as is the revelation of the many interacting factors which so far have been found to determine whether or not cancer will be produced in an animal exposed to the chemical. A single large dose of carbon tetrachloride, even if almost lethal to a mouse, will not produce a cancer. If this single large amount is given in 30 divided portions daily or every other day, cirrhosis of the liver is produced (this has been observed in man), but no cancer ensues. If, however, these small portions are given three, four, or five days apart both cirrhosis of the liver and cancer of the liver occur.' "

Penalty for Poor Ventilation

THE National War Labor Board has directed the inclusion of clauses in an agreement between an iron works and a CIO union which included the following: ". . .b) Any employee who shall be required to work in any confined and poorly ventilated places where welders, burners or spray painters are working shall be paid extra compensation (in addition to his regular straight-time or overtime pay, as the case may be) for such work at the rate of one-half his regular hourly base rate of pay; provided he complies with the company's rules relating to the use of protective equipment for work done under such conditions and also that he claims such extra compensation."

—From "Foundation Facts," in *Industrial Hygiene Digest*, September.

Benzol Fatality after Four Years

IN 1939, the Division of Industrial Hygiene reported a study of benzol exposure among rotogravure printers in three establishments in New York City. This was made in the spring of 1938. Among the 332 workers examined, 130 were found to show signs of benzol poisoning in varying degrees of severity, ranging from cases which needed immediate hospitalization to those which were considered borderline only. After the investigation, all three plants, discontinued the use of benzol. All the men originally affected, who could be reached, were re-examined at intervals during the following year, and all showed improvement upon discontinuance of benzol exposure. Recently, however, the death of one of the men examined in 1938 was brought to our attention. The case illustrates what might be called the "lag phenomenon" of benzol poisoning, a phenomenon with which the clinician should be familiar. . . . There was no satisfactory response to repeated blood transfusions and death occurred on October 6, 1942. . . . Cause of death: Aplastic anemia; diabetes mellitus. It is known that the effect of benzol upon the blood forming mechanism of the body is insidious. Evidence of damage done may not appear for months or even years after exposure has ceased; or again, cases in which there has been apparent recovery may develop a serious relapse after a considerable interval. In *J. Indust. Hyg. & Tox.*, February, 1942, a case

"DEFINITELY SUPERIOR TO TANNIC ACID"*

"Foille . . . forms a protective, mildly antiseptic coating over the burn . . .

"Fresh Foille painted over this layer from time to time easily soaks through to reach the burned surface.

"The entire coagulum is easily removed by saline pack or by soaking every day or two, after which the application continues afresh. No dressings are needed.

"This is in sharp contrast to the tough eschar produced by leatherizing preparations which tend to delay the separation of slough in deeper burns and to imprison and conceal intection beneath it."*

A YEAR'S CONTROLLED STUDY

"In a comparative study of Foille and tannic acid, which we conducted over a year's period, the new preparation seemed to be definitely superior to tannic acid in the treatment of third degree burns, especially where the hands and flexures were involved."*

NOTE: *The same author employs compression dressings of Foille particularly in the treatment of deeper, extensive lesions, leaving them undisturbed from 10 to 14 days.*

FOILLE

Available in 2-oz., pints, quarts, gallons, 5-gallon bottles.

Distributed through Surgical Supply Houses, Wholesale Druggists, Pharmacists and First Aid Suppliers.

CARBISULPHOIL COMPANY

3118 SWISS AVENUE • DALLAS, TEXAS, U. S. A.

CHICAGO • NEW YORK • LOS ANGELES • BIRMINGHAM

*Hamilton, J. E.: Local Treatment of Burns, 40:207-211, (June) 1942.

ROUTINE URINALYSIS SIMPLIFIED • •

PRESENTING TWO IMPORTANT SHORT CUTS

Acetone Test (Denco) goes hand in hand with Galatest (dry reagent for urine sugar) in further simplifying Routine Urine Analysis. Detects the presence or absence of acetone in urine in one minute. The color reaction is identical to that found in the violet ring tests and is equally easy to differentiate. A trace of acetone turns the powder light lavender—larger amounts turn it to dark purple. Acetone Test (Denco) is available in vials containing enough powder for over 125 complete tests, also in combination kits with Galatest.

Write for descriptive literature to the Denver Chemical Mfg. Company, 163 Varick Street, New York 13, N. Y.

Accepted for advertising in the Journal of the American Medical Association.

Galatest
(DRY REAGENT FOR URINE SUGAR)

Acetone Test
(DENCO)

Acetone Test
(DENCO)
Galatest

A carrying case containing one vial of Acetone Test (Denco) and one vial of Galatest is now available. This is very convenient for the medical bag or for the diabetic patient. The case also contains a medicine dropper and a Galatest color chart. The handy kit or refills of Acetone Test (Denco) and Galatest are obtainable at all prescription pharmacies and surgical supply houses.

THE SAME SIMPLE TECHNIQUE FOR BOTH TESTS

1. A little powder 2. A little urine *Color reaction instantly*

of aplastic anemia is reported by Meyer and Ginsberg which they attribute to intensive exposure to benzol 10 years previously. Two cases of delayed poisoning were also reported by Hunter.

—From "Benzol Fatality after Four Year's Freedom from Exposure," by ADELAIDE ROSS SMITH, M.D., in New York State Department of Labor's *Industrial Bulletin*, August, 1943.

Post-War

INDUSTRIAL employees will enjoy continued improvement of health conditions in industry. Among the contributing factors will be new means of air conditioning, and the filtering of air for industries affected by noxious fumes. The smoke nuisance will be combated by new electrostatic devices installed in smoking chimneys to precipitate soot. Plastic lenses for safety spectacles will be more widely used. New devices have been perfected for dispensing dairy products and other refreshments to employees in industrial plants. Innumerable medical discoveries, adapted to widespread use through industrial production of new drugs, antitoxins, disinfectants, water purifiers, and the like, will play important roles in protecting public health. Among the most sensational new developments are those pertaining to chemical therapy. Penicillin is perhaps the most dramatic of many new products of research in this field.

—From "Testimony to the Future," publication of National Association of Manufacturers.

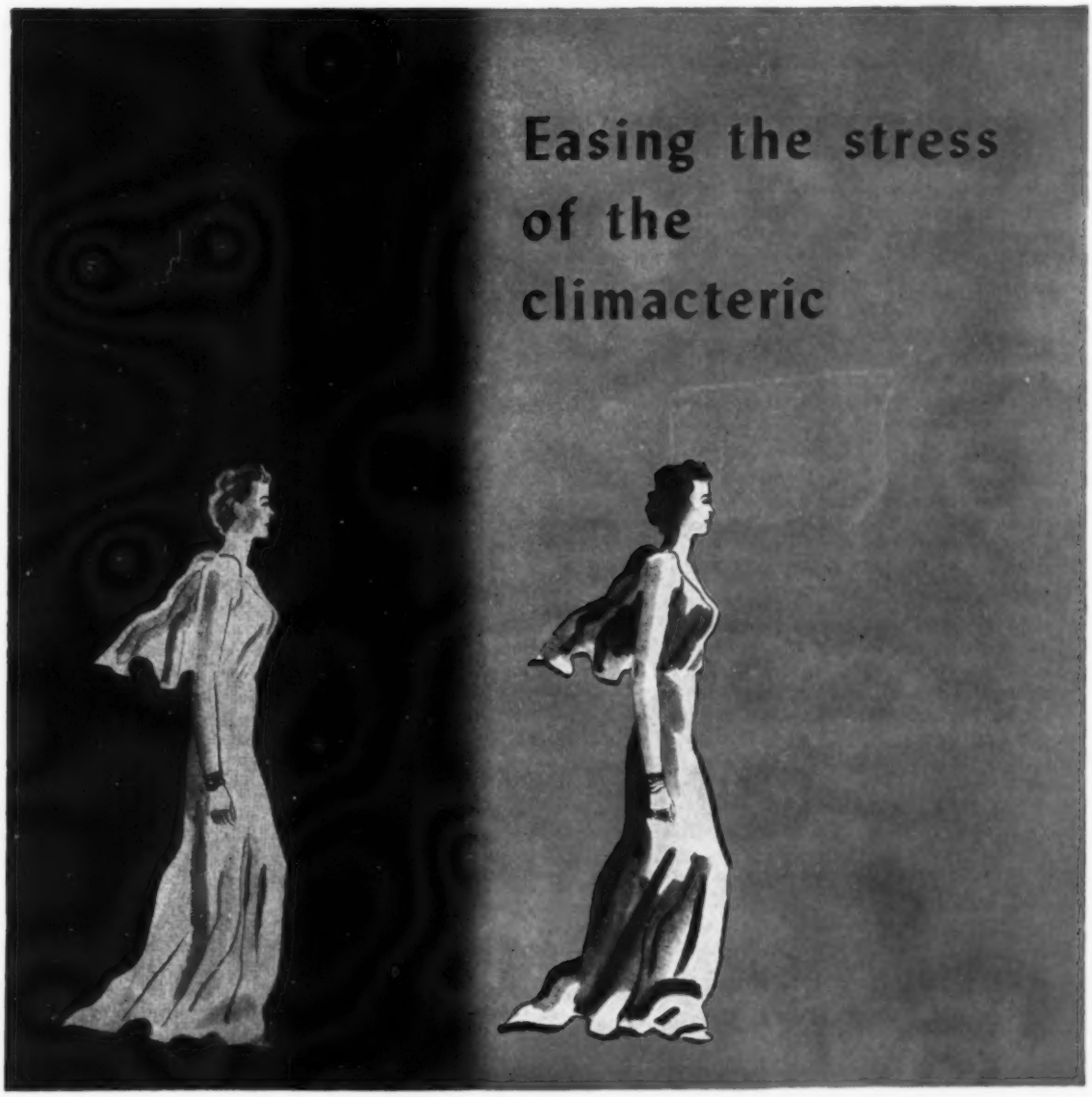
The Pre-Placement Examination

MODERN streamlined industries have adopted the pre-placement examination as an effective tool for placing all workers in jobs which they can do safely and efficiently without endangering themselves and their fellow workers. The objective of the pre-placement examination is to utilize every available worker. In no instance should it be interpreted as a means of rejection of handicapped persons. The old idea that an industrial worker must have the physical requirements of a 1A or 1B selectee must be thrown overboard in these critical times. Before this war is won, industry will have to depend largely upon older men, women, and physically handicapped younger men. Many industries with realistic personnel policies nowadays reject less than 1% of applicants. You cannot adopt the pre-placement examination as a policy unless you have a plant medical service to perform the examinations professionally. The personnel and safety departments should work in cooperation with the medical service. Physician, placement manager, and safety engineer together determine the job in which each new worker can achieve peak production. The pre-placement examination includes: (1) Complete medical and occupational history. (2) Complete physical examination. (3) Test of eyesight. (4) Blood pressure reading. (5) Laboratory analysis of urine. (6) Blood count. (7) Blood test for syphilis. (8) X-ray picture of the chest to detect tuberculosis, especially of applicants whose physical examination suggests the possibility of tuberculosis. One-eyed workers, and many applicants with handicaps such as hernia, high blood pressure, defective vision or hearing, and crippling conditions should be employed and placed by the physician and employment office at jobs they can do efficiently and safely. Applicants found infected with syphilis should be employed, providing: (1) Their disease is in a non-infectious stage; (2) they have no other disqualifying complications; and (3) they remain under treatment.

—From "Outline of an Industrial Hygiene Program," Supplement No. 171 to the Public Health Reports.

Politics

THE *Charleston, South Carolina, News-Courier*, in a sarcastic editorial contribution, emphasizes the political aspects of this measure. It suggests that the medical administrators under the Wagner-Murray-Dingell bill be elected by popular ballot. The medical administrator would have the right to appoint the doctors and assign the cases. He could expect the support of the doctors that he appointed to help him get reelected, and the doctors would use their automobiles and C cards to help haul voters to the polls. They could also contribute to a fund to buy radio time for campaign speakers. Any doctor who worked against the medical director's reelection



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might find it difficult afterward to practice. Appointment in the medical colleges would, of course, be handled like other political patronages so that deserving party members could have their sons trained free of charge. Incidentally, it is pointed out, a lot of useful confidential information could be picked up by the doctors on their rounds that would help the party to stay in office.

—From an Editorial in *J. Maine M.A.*, October, 1943.

Photophthalmia

STRANGELY enough it is not the welder himself who is the most frequent victim of his arc but the workers near him. The welder protects himself with a hood. He may, however, receive actinic injury from another welder's arc, or from his own "accidentally struck" arc while his hood is raised. Inexperience, carelessness and laxity in enforcement of safety precautions play a large part in production of radiant energy injuries to ocular tissues. The eyes may be protected from offending rays by means of proper shields, hoods and goggles. During hot weather diligence must be exercised that goggles are not discarded because of slight discomfort to the wearer. Minimal safe distance to a welder's arc without protection is estimated as 200 feet.

—From "Symptomatic Therapy of Photophthalmia," by CLIFTON E. BENSON, M.D., abs. in *Modern Med.*, October, 1943, from *U. S. Nav. Med. Bull.*, May, 1943.

"Arc Flash" Conjunctivitis

ACTINIC or ultra-violet conjunctivitis bears the unfortunate name of "arc flash" and may be defined as a conjunctivitis, usually of both eyes, caused by excessive exposure to the welder's electric arc and characterized by delayed onset, self-limited course of 24 hours, pronounced bulbar hyperemia, swelling of the lids, slight "sunburn" of the face, absence of discharge other than tears, extreme photophobia and a feeling of sand in the eyes. The name "flash" is heavy with the implication that this eye injury is commonly incurred through an incautious or unguarded exposure of the eyes to the flash of the welder's first brilliant contact spark and thus is an instantaneous affair. This can occur, but the injured person must be very close to the arc, within a foot or two, and this proves infrequently the case. It is so usual as to be the rule that the painful eyes of "arc flash" result from an excessive exposure to the arc over a minimum of several minutes, more commonly several hours of time spread through the working shift. It is a cumulative injury similar in pathogenesis to that of snow blindness and sunburn, which obviously are quantitatively related to skin pigmentation and length of time spent in the sun's rays. For this reason it occasionally has been necessary to change the location of work for certain very blond or red-haired workers from shops in which they were constantly bombarded by ultraviolet radiation from nearby welding operations. The oxyacetylene torch does not commonly cause "arc flash." At Oregon Shipbuilding Corporation we saw several hundred cases of true radiation conjunctivitis during the first year, most frequently among our new employees. During our second year, with a much larger payroll and two to three times as great a rate of ship production, with proportionate increase in total welding, we have seen relatively little of the arc flash "red eyes." At Kaiser Company Inc., Portland, with 24,000 employees, currently in the first year of production, history is repeating itself and a far higher percentage of "arc flash" injury is occurring than at Oregon Shipbuilding Corporation.

—From "'Arc Flash' Conjunctivitis," by FORREST E. RIEKE, M.D., Medical Supervisor, Oregon Shipbuilding Corporation and Kaiser Company, Incorporated, in *J.A.M.A.*, July 10, 1943.

Accidents

A STUDY of the accident rates brings forth a surprise. We have been prone to say that accidents have nullified many of the gains made in other phases of health and safety work. It is certainly true that there are too many accidents and that the accident record is far from what it should be. Nevertheless, accidents from all causes were only about 65% as prevalent in 1940 as in 1900. The composition of the accidental death rate as to causes of accidental deaths has, of course, changed markedly. Where industrial deaths used to head the list and were then displaced by deaths from motor vehicles, it is now home accidents which are the most serious cause of death and disability. This is unquestionably due to the sustained educational campaigns and the introduction of accident safeguards in industry and to the rapid rise of the automobile traffic in the United States, which in 1940, our chosen year of comparison, had not

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yet been affected by wartime restrictions, but in which, nevertheless, a determined accident prevention campaign had begun to show results. In the meantime, the increased mechanization of the home and until very recently the absence of any preventive efforts, have rendered the home an increasingly unsafe place in which to be.

—From "Better Health for Longer Lives," by DR. W. W. BAUER, in "Education for Health Maintenance," published by Industrial Welfare Department, Zurich Insurance Companies.

Preventive Measures

REGISTERED nurses on duty day and night at the plant, and American Welding bases its preventive campaign on the services of these trained professional people. All cuts and bruises, however minor, receive immediate treatment to prevent the development of infection or other serious results. The same nursing staff keeps careful records of the progress of all injuries received within the plant and, in addition, follows up the prescribed treatment for accidents or illness occurring outside of working hours. In other words, no employee is allowed to neglect the recommendations of his physician as regards the treatment of any illness, whatever its nature. It is the duty of the nursing staff to schedule further treatments and to see that the man is excused from work for such treatment when necessary. The nursing staff further conducts eye examinations every six months for all employees. These tests are of a nature to reveal any eye condition requiring treatment or prescription lenses. Safety goggles, which are required of everyone in the plant—visitors, workmen, and management alike—are fitted with prescription lenses where indicated. American Welding furnishes the examination, the prescription and the frames free of charge. With the expansion of the medical department, each employee will be called up once a year through notice to his foreman for a thorough physical examination. The nurses conduct examinations of eyes, ears, throat, feet, varicose veins, and blood pressure. The company doctor, who is always on call, examines for heart condition, hernia, and other details requiring a physician's opinion. The company's x-ray machine will be used not only for accident cases, but is expected to be extended to yearly lung examinations for tuberculosis. The dispensary at American Welding administers treatment within its facilities for all illness or injuries not requiring a doctor's attention, including such activities as light treatment for sinus or skin infections. Beginning about November 1 of each year, the nurses dispense cold capsules, which have proved of considerable benefit in reducing time lost due to this common disability. It is planned to dispense vitamin tablets free of charge to each workman during the winter season.

—From "Preventive Measures at American Welding," in *Occupational Hazards*, October, 1943.

Horseplay

INVESTIGATIONS by the Federal Bureau of Investigation into thousands of plant accidents have shown that in the most serious impairment of our war production is not from sabotage but rather from aggravated horseplay and practical joking. Actual sabotage has been held far below the level which might reasonably have been expected under the circumstances of this war. Since January, 1940, the FBI has investigated 11,534 cases of reported sabotage. Of these, less than 10% yielded evidence of possible sabotage. In only a handful of the 485 cases of persons convicted under the Federal sabotage and related statutes was there any deliberate attempt to impede the war effort. In most instances the offenders were motivated by personal anger or spite toward a superior. Ill-advised "prankishness," however, has resulted in the loss of thousands of hours of production. At Decatur, Alabama, a steel plant employee caused considerable delay in highly important work by tampering with the oxygen tanks. His only reason was "just to have some fun." Several workmen in a shipyard at Richmond, California, were severely burned by mustard oil placed on them by a fellow workman as a practical joke. In the same shipyard a crew had been "having fun" by putting hot welding rods and lighted cigarettes in each other's pockets. Investigation of a fire in a Detroit plant revealed that employees frequently amused themselves by placing pieces of smoldering string on a workman's shoulder. One employee admitted striking matches and drop-

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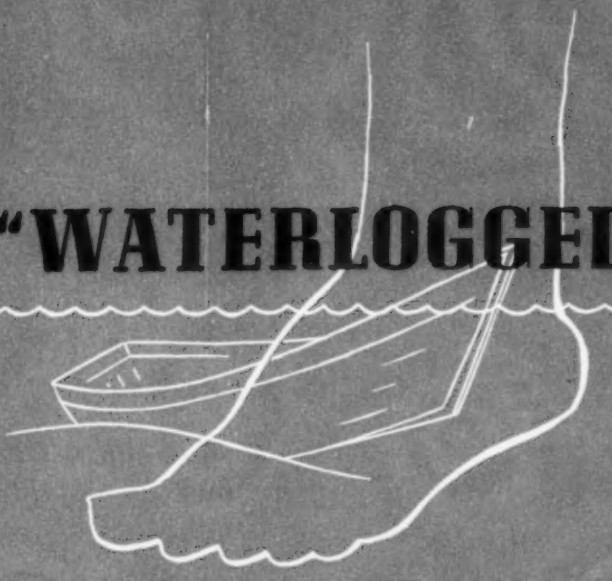

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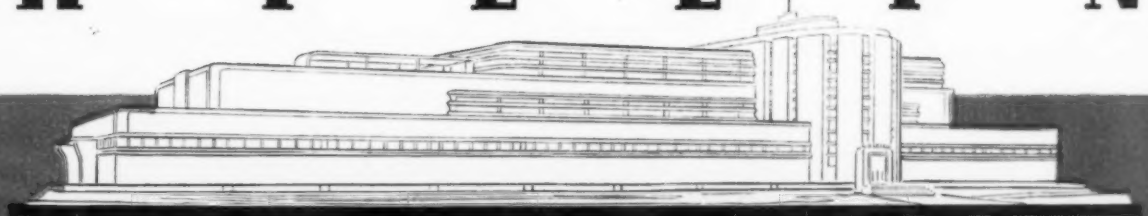

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ping them into a cardboard box soaked with oil. In many plants intelligent management has solved this problem through special training of plant guards. Articles on this subject in the business press would do much to help this situation by passing along the "know-how" to other plants. Information which may lead to interesting case history studies may be obtained by writing to John McGuire, Federal Bureau of Investigation, Room 5936, Department of Justice Building, Washington, D. C.

—OWI Fortnightly Letter.

Ultra-Violet

AT MESSRS. Cadbury Bros., Bournville Works, DR. J. B. SHERMAN, the Medical Officer, made elaborate and careful tests on 1635 employees with various methods of preventing 'colds'. His tests showed that whereas the average absence due to colds amounted to 106 days per 100 workers, in the ultra-violet ray group this was lowered to 66 days per 100 persons. He concludes "It was found that the only method of real value was ultra-violet irradiation, which reduced both the severity and the number of colds in patients so treated. The method is cheap and easily applicable to large numbers of employees. Its use by big industrial concerns would definitely lower the tremendous economic losses at present caused by the common cold." A London office staff numbering 2,256 persons averaged 9.15 days absence per head each year through sickness of all forms, and an Approved Society with 2,404 members showed practically the same figure—9.16 days: even in these high figures, no absence of less than three days has been counted. At the head offices of an important imperial undertaking, with a staff numbering 1,444, where ultra-violet ray treatment is available for the employees, the Medical Officer finds that absence is reduced to 4.7 days per person, and this figure includes all absence over half a day. This authority says: "There is wider scope for the use of irradiation as a preventive measure. It is a simple and straightforward matter to administer small tonic cases of ultra-violet rays to a comparatively large number of persons within reasonable time when the only object is to maintain health and build up the necessary resistance to the possible onset of illness. . . . The experience of many firms who provide ultra-violet radiation for their employees indicates that it is a most valuable measure for safeguarding the health of the workers. It is thus a boon the use of which should be most widely encouraged." Wherever careful statistics are kept, the same trend is shown. At the Boliden Copper Mines in Sweden, the Medical Officer reports that after installing sunlamps, the reduction of absence due to illness (not including accidents) amounts to 120 days per annum for each 100 workers. In addition to this, 'one day' absences diminished by 12%. In all, these mines gained 134 additional working days from each 100 workers during the year in spite of the fact that the figures of absence due to illness had previously shown a general trend towards increase during three years. The most striking figures emanate from Soviet Russia, where epidemic influenza is rife. It is recorded by DR. AUSTIN FURNISS that preventive sunray treatment was introduced into a textile factory which had suffered particularly from absence due to this cause. During one year, 39 workers in this factory totalled 1,151 days of absence (an average of nearly 30 days each); in the next year, after a preventive course of ultra-violet irradiation, absence among these same 39 workers totalled 82 days only or just over two days per head. Most of the workers remained unaffected by the epidemics after their resistance had been raised by the sunbaths.

—From "Fitness in Industry and Its Maintenance by Indoor Sunbaths," compiled by Hanovia Ltd.

Need for Protective Services

To: Regional Medical, Nursing, Engineer, Gas and Rescue Officers. *From*: DR. GEORGE BAEHR, Chief Medical Officer: "Rumors that civilian defense is no longer necessary have recently been spread by irresponsible persons. These rumors are thoughtless or calculatingly subversive for they are not supported by Army authorities responsible for our coastal defenses nor by the present military situation. Fortunately, the success of our armed forces overseas has saved us thus far from experiencing the horrors of enemy bombing to which the cities of our Allies are being subjected. In the opinion of the best military authorities our coastal areas and industrial centers will not be free of the danger of enemy attack from the air nor of widespread sabotage until the last day of the war. Civilian defense is needed also as one

—*Continued on page 788.*

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Industrial Medicine

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The Journal of Industrial Health, Occupational Diseases and Traumatic Surgery

With which are consolidated "The Industrial Doctor" and "International Journal of Medicine and Surgery."

The Science, the Law and the Economics of Industrial Health

Volume 12 November, 1943 Number 11

Benzol Poisoning

—Method for Its Control in a Light Chemical Plant—

R. M. WATROUS, M.D.,
Plant Physician, Abbott Laboratories,
North Chicago, Illinois

THERE is no need to emphasize the seriousness of chronic benzol poisoning to anyone who has become acquainted even with the bare rudiments of its nature. In any plant where benzol is handled, the necessity for some system of control can generally be conveyed to the management by the proper educational approach, but there may not be complete unanimity, even among industrial hygienists and industrial physicians, concerning the best "method" of control. Analysis of air samples collected in the plant is one valuable control procedure; the determination of the organic-inorganic sulfate ratio in the urine of exposed workmen is a useful supplement to it. Both of these measures are well adapted to reveal exposure to benzol, but neither gives any idea of whether the exposure has produced damage to the blood-forming tissue in the bone marrow. In a complete benzol-control program, therefore, these chemical procedures must be supplemented by periodic medical examinations, and, in such examinations, the periodic blood-count appears as the most important single feature.

There may be some who believe that with adequate engineering—with all benzol handled in closed systems or in well-ventilated locations—no health hazard can exist. These persons, if there be any, would then consider periodic medical examinations superfluous. However, in the case reported by Hunter,[1] fatal poisoning was attributed to an unbelievably small exposure to benzol, and the recording of this case in the literature has unmistakable medicolegal implications, whether one is prepared to agree with the diagnosis or not.

As to the efficacy of engineering safeguards, it can never be absolute—not as long as there are pumps that spring leaks, or pipes that burst, or workmen who spill things on the floor, or fans that break down, or painters who have discovered benzol is an excellent brush cleaner, easily obtainable by the pailful from some "friend" over in "the plant." As long as there are any of these factors operating, good engineering is not enough; there must also be medical supervision and constant vigilance by a safety organization. It is a safe rule to assume that anywhere benzol is handled, some benzol will be absorbed. Where benzol is absorbed, sooner or later there will be a workman who is susceptible to the poison. The only way to detect this early is to make periodic blood counts, and to have them interpreted by a physician who understands benzol poisoning.

To recognize an abnormal blood count, it is necessary to have a very definite idea of what constitutes a normal one. Like so many other factors met with in biology, this one has a certain vagueness that may irritate the worker in more exact sciences. Textbooks on clinical pathology usually give tables which express in round numbers the "normal" values for blood counts, but such figures are practically meaningless because they give no idea of the range or the limits of normal.

One of the most complete and easily understood methods for indicating the exact range of any biological characteristic is the frequency-distribution curve, which usually takes the familiar bell shape shown in Fig. 1. The quantities measured along the X-axis can be any characteristic one wishes; the Y-axis is used

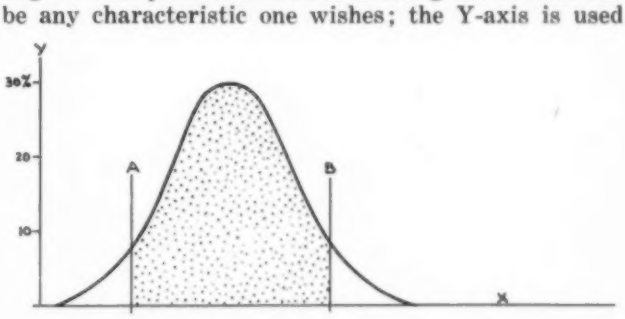

Fig. 1.

to indicate the percentage of persons in the group who possess any given value of the characteristic which is under investigation. One can choose any arbitrary limits, such as the lines A and B, on either side of the peak of percentages, and can call these the limits of normal. The shaded area between these limits, lying under the curve, will then indicate how big a part of the group under investigation may be called "normal." The small unshaded areas remaining under the curve represent that part of the group which is arbitrarily called "abnormal." The choice of the limits A and B is arbitrary; it can only be made after study of the curve, and it will be influenced by a number of practical considerations.

To apply this method to blood counts, a frequency-

Paper presented before the Division of Water, Sewage, and Sanitation Chemistry, Symposium on Industrial Hygiene, American Chemical Society, Pittsburgh, September 6, 1943.

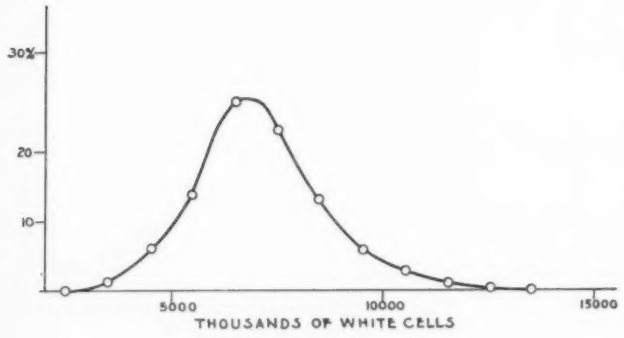

Fig. 2.

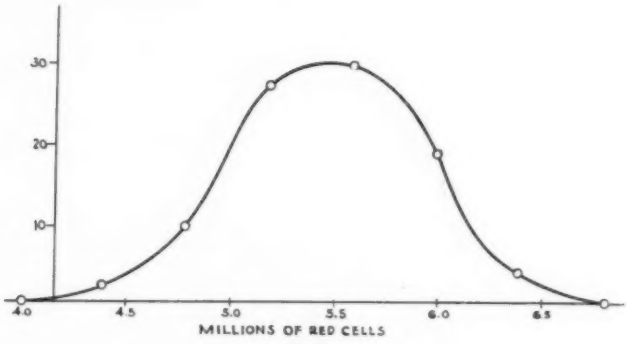

Fig. 3.

distribution curve may be constructed for the particular factory population to be studied. Blood counts should be made on a large number of employees apparently in good health and not exposed to any known bone-marrow poisons. Fig. 2 shows a frequency distribution curve for values of the white cell count found by Osgood[2] in normal adults. It will be noted that this curve varies from the typical bell shape, especially in its right hand branch. This merely indicates that white counts higher than 7000 are more common than those below 7000.

A similar curve for values of the red cell count in the same group is shown in Fig. 3.

By plotting curves like these for the normal members of any factory population, a proper notion of what constitutes a "normal" blood count can be approached, and one is then prepared to pass judgment on the blood counts of those exposed to benzol.

In the Abbott Laboratories chemical manufacturing division, there is a group of 100 to 200 men who may, at one time or another, come in contact with benzol. Periodic blood counts have been made on these men regularly for the past three years. One man's record for that period is shown in Table I. Such a record is of great value when any question concerning the status of the particular individual comes up, and this sheet is therefore kept with the man's individual chart. However, records of this kind can give only a completely confused idea of what is happening in the plant as a whole. For this reason, it was necessary to devise some simple means of coding these blood counts so that they could be recorded on a single master chart.

After some thought, it was decided to set arbitrary values for a blood count that would be indisputably "normal."

These were as follows:

1. White cell count above 6,000.
2. Red cell count above 4.50 million.
3. Hemoglobin above 12.0 gm./100 cc.
4. No immature or abnormal red or white cells.

Next, values were set for a blood count that would indisputably show a depression of the bone-marrow. These were:

1. White cell count below 5,000, *or*
2. Red cell count below 3 million, *or*
3. Polymorphonuclear cells below 30%, *or*
4. Any immature or abnormal red or white cells.

Values in between these two limits were to be listed as "suspicious." On the master chart, a section of which is shown in Fig. 4, the names of all men exposed to benzol were listed in alphabetical order in the left hand column. Across the top were printed the months of the year. Each blood count was recorded as a single mark, red for an abnormal count, blue for a suspicious count, and black for a normal count. The mark was placed under the name of the month in which the count was made, and the space for each month was left wide enough so that the position of the work from right to left could indicate almost the exact date of the blood count. By telescoping the space, blood counts for previous years could be recorded in separate columns to the left. It will be apparent at once that a number of facts can be gathered by the simple inspection of such a chart. By scanning the line opposite any man's name from left to right, one can check whether he has had his periodic counts at regular intervals or not. If he shows an abnormal count, the character of preceding counts can be known immediately by the color of the marks used to designate them. Finally, the approximate date when the next count is due can be determined; this last feature is of great help to the nurse whose duty it is to call the men in at the proper times. By scanning any month from top to bottom, one can determine whether there is an unusually large number of abnormal or suspicious blood counts; this is a reflection of conditions in the plant as a whole during that month, and will point the way to more rigid inspection, stronger enforcement of safety rules, or better engineering. The amount of

TABLE I.
BLOOD COUNT REPORT

NAME: John Doe DATE EMPLOYED: 2-12-34

FORMER OCCUPATION: Chemist, steel plant

Date	White Count	Differential White Count						Red cells x 10^6	Hemoglobin Gm./100 cc.
		Neutrophils		Eosino	Baso	Lympho	Mono		
		Young	Mature						
10- 4-39	7,350	4	44	6	0	35	10	5.41	16.0
1-22-40	5,400	10	31	1	0	44	13	6.26	13.9
2-12-40	7,900	1	47	1	3	35	8	6.02	15.0
5-31-40	5,950	1	64	3	0	26	6	4.72	15.0
8-28-40	6,150	5	35	6	0	47	7	4.99	14.0
10-31-40	5,950	1	49	4	1	37	7	5.26	15.5
12-19-40	7,100	7	40	5	2	36	7	4.78	14.5
2- 3-41	10,650	18	40	3	3	27	5	4.96	14.5
3-27-41	8,150	2	69	3	1	21	4	4.89	14.0
7- 2-41	6,600	0	55	2	0	40	3	4.80	15.0
10-21-41	6,700	3	50	1	1	43	2	4.60	17.0
1-15-42	6,100	6	52	2	2	30	8	5.27	17.4
4-14-42	8,050	0	57	3	0	38	2	4.86	14.0
7- 9-42	6,700	0	63	4	1	30	2	4.58	15.5
10- 8-42	8,650	3	54	1	0	34	8	4.82	15.4
1-28-43	7,250	0	75	0	0	23	2	4.69	16.0

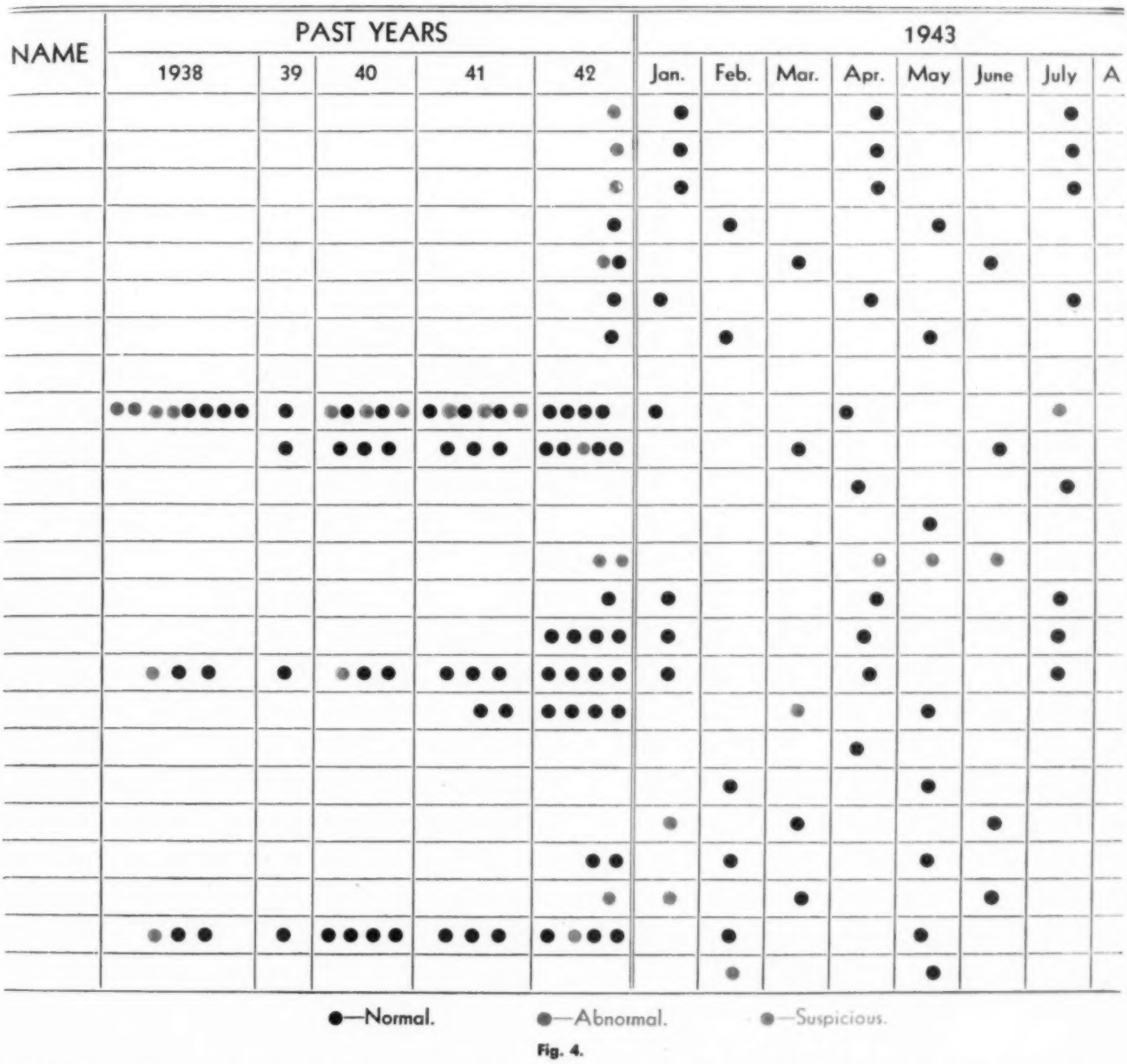

Fig. 4.

red or blue showing on the chart at the end of the year will be a fairly good measure of the success or failure of the benzol-control program.

Those who advocate periodic blood counts for workmen exposed to benzol differ slightly in their recommendations concerning the time interval which should elapse between routine counts. The consensus is somewhere between one and two months. At Abbott Laboratories the routine interval is three months, but this applies only to men who continue to show normal blood counts. Any man showing a suspicious count must have his blood examined again in two months, and those who show abnormal counts are examined again within one or two weeks. If the count is abnormal after the second count, the man is called in for an interview, and is immediately removed from all contact with benzol. Thereafter, his blood count is repeated weekly until it becomes normal. The few men who have shown persistently abnormal counts have not been allowed to return to their former work even after they recovered.

During the three years this system has been in operation approximately 1300 blood counts have been made and recorded on master charts. Five cases of incipient bone marrow failure were detected, and all of these returned to normal status after they were removed from contact with the poison. The transfer of these men, some whom were highly skilled and valuable workers, to other departments stimulated their superior officers to find and remedy a number of benzol hazards which they had formerly considered unimportant, and in this way general working conditions were improved so that there has not been a single red mark on the master chart for the past year.

Summary

THE necessity for a program of periodic examinations, with emphasis on blood counts, is asserted to exist in any industry where benzol is handled no matter what other safeguards surround the process.

2. To simplify the recording of these blood counts, and to obtain an over-all estimate of the benzol control program, a system is proposed for classifying blood counts as "normal," "suspicious" or "abnormal," and for recording them on a single sheet by single marks of three different colors.

3. Application of this system to a light chemical manufacturing plant where benzol is extensively used has detected five cases of incipient benzol poisoning early enough to permit complete recovery.

References

1. HUNTER, F. T.: Chronic Exposure to Benzene (Benzol)—II The Clinical Effects. *J. Indust. Hyg. & Tox.*, 21:331, October, 1939.

2. OSGOOD, E. E.: Normal Hematologic Standards. *Arch. Int. Med.*, 56:849, 1935.

Causalgia

—And Causalgia States—

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CAUSALGIA, reflex paralysis and post-traumatic pain syndromes (causalgia states) present diagnostic and therapeutic problems occasionally seen in industrial and military surgery, often misunderstood by the attending physician. Although these conditions were first described by Weir Mitchell preceding and during the Civil War,[1] until very recently there has been very little literature since that time. A casual review of recent surgical literature in the past few years, reveals only a rare article, yet it is a necessity that we recognize these cases in order to differentiate between those of organic origin which require specific treatment, and those of functional origin whose treatment is quite dfferent. Causalga and causalgia states represent functional and trophic disturbances that may not conform to any textbook pattern of nerve distribution. There is a great temptation to deny such cases an organic basis and to ascribe the symptoms to psychic causes for which the patient may in some way be responsible.

The following case recently presented by Dr. John Morton, of the University of Rochester, might illustrate the subject.

The patient was an intern, a large, robust, healthy fellow, always in excellent health and definitely with no psychoneurotic trends. In playing tennis, he landed forcefully on his heel, experienced some pain but was able to finish the game. That afternoon he asked a fellow intern to strap his ankle because of moderate pain. The following day the pain was quite intense and an x-ray was taken which showed no pathology. The pain gradually became worse, of severe burning character. The skin became glossy, atrophy of the skin and muscles developed and progressive x-rays showed extensive osteoporosis of all bones of foot and foreleg. The patient was totally disabled for over six months and recovery was effected only by periarterial sympathectomy. This is a typical case of post-traumatic causalgia. It represents the fact that an irritation of a sensory nerve may initiate clinical states that are characterized by pain and a spreading disturbance of function on both somatic and visceral structures.

Because of the unusual symptoms, the serious possibilities of an error in diagnosis, it seemed to me important that this subject be presented, with first a brief review of pain pathways and mechanisms, and then a review of the types of causalgia and a brief discussion of their treatment, so that we may appreciate the ability of peripheral nerve irritations to disturb the normal physiology of an extremity.

Anatomy of Pain Pathways

THE PAIN pathways consist of four neuron elements:[1, 3]

1. Receptor neuron.
2. Connector neuron.
3. Central neuron (thalamus).
4. Cortex.
5. Sympathetic nerve pain conduction.

1. Receptor neurons are free nerve endings in the skin and elsewhere with their cell station in the posterior root ganglion and, from here, the central process extends into the spinal cord, where the fibers each divide into a short ascending and a short descending branch, extending not more than one or two cord segments and terminating in the gray matter of the dorsal horn where they come into synaptic relation with the connector neurons.

2. The connector neurons cross immediately to the opposite side of the cord and ascend in the lateral spinothalmic tract to end in the lateral thalamic nucleus.

3. The thalamus is the primary receiving center for all types of sensation, the center of awareness, and apparently represents the seat of primitive emotion.

4. The cortex. The thalamus sends projections to all parts of the cortex but the pathways subserving sensations apparently concentrate in the post-central convolution. This gyrus is in intimate functional relationship with other parts of the cortex, so that all sorts of association based on past experience may be called into play in evaluating a particular sensation.

5. Pain conduction through the sympathetic nerves has also definitely been established[6] first, by the course of sympathetic nerve fibers in the peripheral nerves through the gray rami communicantes to the sympathetic trunk and thence through the white rami communicantes and the nerve roots into the spinal cord; and secondly along the blood vessels directly to the sympathetic trunk and from there again into the spinal cord. The afferent pathways of the sympathetic system also terminate in the gray substance of the thalamus where all sensory and sensitive stimuli are collected.

The ability to call up past experiences and judgments enables the individual to evaluate the finer gradations of sensory impressions, to accurately localize the source of stimulation and to make the discrimination which characterizes the cerebral components of sensory experience. While pain is generally considered a thalamic perception, an interplay between the thalamus and the various parts of the cortex takes place to modify the physical sensation.

Methods for Interrupting the Pain Pathways

THEORETICALLY, it should be possible to relieve pain by a surgical attack on any of the pathways. If it is impossible to remove the agent that is sending the pain impulses at the periphery, the surgeon might elect to:

1. Cut the peripheral nerve.
2. Cut the posterior roots over which pain impulses travel.
3. Cut the spinothalamic tract.
4. Excise appropriate parts of the sensory cortex.
5. Interruption of sympathetic nerves.

1. Cutting peripheral nerves is usually totally unsatisfactory due to the overlapping of peripheral nerve distribution. The facts are that cut peripheral nerves regenerate and that peripheral nerves are mixed, that is carry both motor impulses and sensory impulses of touch and posture, as well as pain.

2. Cutting the posterior root (posterior rhizotomy) over which the pain impulses travel, deals only with sensory elements of the nerve, that is the motor functions are conserved. Regeneration does not occur in fibers of the posterior root. Practically, however, the results are variable, frequently a failure due to associated pathways and because apparently some pain fibers also travel over the anterior root despite the old teachings to the contrary.[1]

3. Anterolateral chordotomy consists of selective division of portions of the spinothalamic tract at appropriate levels. This interrupts only pain and temperature sensations on the opposite side and the results are permanent but this has been only partially successful.

A method sometimes used for relief of intractable pain consists of the injection of absolute alcohol into the spinal dural sheath. By introducing alcohol by a spinal puncture, it is lighter than spinal fluid, there-

fore rises and, with the patient on the well side, the alcohol affects the posterior roots of the affected side. The chief objection is lack of precision and the danger of producing injury to the function of the skeletal muscles and the loss of control of the sphincters of the bladder and rectum. This procedure is usually reserved, therefore, for use only in cases of hopeless malignancy or advanced circulatory disturbances with gangrene.

4. Excision of appropriate parts of the sensory cortex while theoretically possible, and experimentally proven successful in some cases,[1] certainly need not be discussed.

5. Interruption of the sympathetic pathways has recently proved beneficial in pain relief in many and varied conditions.

Novocaine injection that produces a temporary interruption of sympathetic pathways has been found useful as a prognostic test to determine the value of a subsequent sympathectomy, and more recently it has been employed as a therapeutic agent in its own right.[2, 5]

Periarterial sympathectomy or ganglionectomy is frequently required and effective in relieving pain and other causalgia symptoms.[6] Some authors who deny that sympathetic ganglionectomy interrupts a pain pathway feel that the relief of causalgia following sympathectomy is explained by depriving the skin of sympathetic nerve supply and persistently increased blood flow through the cutaneous vessels consequent upon loss of vasomotor tone.[3]

Causalgia

CAUSALGIA is a term first used by Weir Witchell in 1864 in describing the injury of nerves and their consequences. It is a clinical syndrome affecting either upper or lower extremities but never the trunk, consisting of:

1. Burning pain, usually continuous, violent, intractable, not definitely defined pain which cannot be controlled by the usual analgesics.

2. Extensive trophic changes of which glossy skin is the most prominent.

3. A local rise in temperature, although occasionally other trophic changes may be seen, that is, coldness instead of local heat with hyperesthesia and sweating.

These symptoms follow trauma to a peripheral nerve, frequently do not reach their height until four or five months after injury and usually tend to disappear slowly after one or two years but may last for years, some even extending and spreading to neighboring or distant nerve pathways.

The damage that may be done during even a relatively short period may be irretrievable. The skin may become red, thin, glossy, devoid of wrinkles, the muscles may undergo fibrous changes so that they become almost immovable. The bones show atrophy varying from slight generalized loss of density to the moth-eaten appearance of an advanced osteoporosis. The skin no longer slides easily over the underlying structures but fuses with them; the small joints are stiffened and fixed and the fingers become thin and tapering.

The pain and hyperesthesia are so great that the patient will not submit to massage or manipulation which might improve the tissue nutrition and the mobility of the muscles and joints. Heat usually aggravates the pain so that the usual modalities of physiotherapy are not tolerated. The alterations in morale, emotional stability and even personality which may result from long continued suffering are not the least important of the permanent changes which may be left, even when the burden of pain can be lifted.

Various terms are used to describe these types of cases. Causalgia is the word most frequently used and the lesser types are occasionally called minor causalgia or causalgia states. A frequent present-day term which has the advantages of being descriptive is post-traumatic pain syndromes. Peripheral paralysis, mirror image pain syndromes, phantom limb sensations or post-amputation syndromes are all clinical syndromes included in this group. It is to be stressed that these are not obsession neurosis as frequently labeled in the past but are all dependent on some form of peripheral irritation, plus some sensitization of the receiving centers of the nerve pathway mechanism. In this latter respect, the emotional stability and psychic make-up of the individual may influence the severity of the complaints but the condition, nevertheless, is based on an organic mechanism.

The treatment of causalgia in general, is frequently difficult and the result frequently unsatisfactory, particularly when the treatment is instituted late, if the signs and symptoms are severe and have been present a long time. When the irritative lesion involves a major nerve and when the evidences of this irritation show no tendency to subside but instead get progressively worse, the nerve should at once be exposed surgically. If it is apparent that the damage is not serious, a neurolysis should be carried out and, if possible, the trunk placed in a new bed at a distance from the scar tissue resulting from the original injury. If the nerve has been partially divided, an excision of the damaged portion and an immediate end-to-end suture of the divided trunk may effect a cure. Occasionally a cure may be obtained by novocaine injection or by excision of appropriate sympathetic ganglia without anything being done to the original nerve lesion. This is especially true of those cases showing extensive vascular constriction spasm and is frequently true of those cases showing typical spotty osteoporosis.

Local novocaine infiltration at the site of nerve injury, at the corresponding sympathetic ganglia or peculiarly distally to the lesion gives temporary relief by abolishing the pain reflex syndrome and is of great diagnostic aid but little therapeutic use except rarely in early cases. However, all these methods or any combination of them may fail.

Minor Causalgias

POST-AMPUTATION fingers: These are the tender stumps with burning pain, hyperesthesia, impaired circulation, cold, cyanotic, sensitive to cold with dusky red, shiny, smooth skin.

These post-amputation fingers are dependent upon chronic irritation of sensory nerve fibers. The features are reflex in origin and dependent upon a disturbed central physiology. Just why one particular finger amputation is followed by the development of a profound physiological disturbance, while the great majority of similar injuries show only minor changes for a short period of time, or are spared entirely, no one can say. While the temperament of the individual is a factor, it does not explain the occasionally seen case where with both hands injured at the same time and each similarly involved, one side heals normally and the other develops the syndrome suggestive of causalgia. It is suspected that the underlying cause is more directly related to the manner in which the sensory nerve becomes involved in the scar tissue or are otherwise subjected to a chronic irritation.

These cases show certain characteristics.

1. The pain and physical signs may not conform to the known pattern of distribution of the peripheral nerves or of the nerve roots.

2. Local hyperesthesia is very common, frequently so excessive that the observer is prone to underestimate its severity or to doubt its reality.

3. A frequent association of physical signs indicating an abnormal activity of nerve functon, particularly of sympathetic nerves, that is, local sweating, alteration in color and temperature, local edema and trophic changes involving skin, muscles, joints and bones, which develop insiduously and, when well advanced, may be irreversible so that the functional efficiency of the limb may be permanently impaired.

The most unusual feature of these cases is their tendency to improve when the local area of injury or the appropriate sympathetic ganglia are infiltrated with novocaine. There is no evidence that this drug destroys the nerve pathways that are not injected and normal sensation usually returns to the part promptly and completely, yet frequently the pain syndrome relief is almost supernatural. The similar traumatic relief of pain following novocaine injection of sprains is similarly dramatic and likewise owes its success to this same explanation.

The treatment for these painful amputation-stump cases is varied. Some of them spontaneously get well. Physiotherapy is very helpful after the hyperesthesia will permit it. Occasionally a higher amputation is done but frequently with indifferent results. Periarterial sympathectomy is occasionally necessary, often a sympathetic ganglionectomy.

When the location of the offending lesion can be identified, the simplest method of treatment consists of an excision of the area. The relief is conferred more often when the excision is performed early than when done later. However, in this type of case, previous local novocaine infiltration not only is diagnostic but amazingly is frequently curative, although may recur days, weeks or months later. Some of these may be cured by repeated injections.

Post-Traumatic Pain Syndromes

THESE cases represent a symptom complex characterized by severe pain and protracted disability following an apparently minor injury. They constitute the most numerous and important representatives of that group of cases, ascribable to chronic irritation of sensory nerve fibers which have often been called "the causalgic states."

In the industrial clinic, the post-traumatic pain syndromes constitute a serious problem. They are difficult to recognize and difficult to cure. The subjective complaints appear to be excessive both as regards the spontaneous pain and the local hyperesthesia, because the causative injury may be innocuous in appearance and x-ray studies fail to show bone injury. The distribution of pain frequently does not conform to definite peripheral nerve pattern. The coldness, cyanosis and edema may be ascribed to immobilization of the extremity in the dependent position. Tests for muscle strength elicit responses that seem inconsistent with the degree of atrophy and the apparent condition of the musculature. The diagnosis may erroneously be exaggeration, malingering, psychoneurosis or compensation neurosis.

To recognize an instance of post-traumatic pain syndrome is not as difficult as it is to cure the condition. The usual physiotherapy modalities either produce no lasting benefit or may actually aggravate the state. Many cases are intolerant to heat and the hyperesthesia prohibits massage. Frequently a trigger point is found that is accessible for surgical excision or its sensitiveness may be abolished by repeated injections of novocaine. Injections may be confined to the region of a suspected trigger point or may be aimed at blocking the impulses carried by the major nerves supplying the affected area, or in cases with obvious vasomotor phenomena, injection of the appropriate sympathetic ganglia. If successful in interrupting the reflexes responsible for, or contributing to the pain syndrome, the hyperesthesia disappears, pain is alleviated often even in other major nerves, muscle strength and mobility are greatly increased and there is an associated improvement in local circulation. Frequently a single treatment may establish a dramatic cure. Occasionally the reflex recurs after a long interval and further injections are necessary and equally effective.

There are many associated groups of cases demonstrating this symptom complex that should be mentioned but will not be discussed. The "mirror image" pain syndrome is definitely a causalgia state. Many cases of chronic low back disability are now being diagnosed and successfully treated, considering these as a disturbed reflex syndrome initiated by an irritable focus or trigger point. The dramatic response to novocaine blocking of these trigger points is both diagnostic and therapeutic.

Trigger mechanisms probably also explain many cases of post-traumatic headaches, migraine and vascular neuralgias. The classical syndrome of trigeminal neuralgia represents the points already stressed earlier in this paper, both in its etiological explanation and its surgical treatment.

Phantom limb pains, to a variable degree, are present following almost all amputations for a variable length of time.[2, 4] These symptoms vary from time to time in any one individual. The sensations cannot be explained on an anatomical basis, since the nerves are completely absent but the various reflexes persist. The previously stated methods of treatment apply equally to this type of case.

There are certain practical points to be raised:

1. How may trigger points be identified?

They are identified normally by their sensitivity, the history of the site and nature of the original injury is often helpful and, finally, the result of novocaine injection identifies it.

2. How may a surgeon lessen the chances of the development of trigger points in postoperative scar tissue?

The cardinal principles of good surgery, especially in the gentleness and respect accorded to tissues in their handling, is probably the most important factor. The psychological relationship of patient and surgeon must also be mentioned as a psychic factor in influencing any postoperative or posttraumatic pain syndrome.

3. How may neuromas be prevented?

There is no method of preventing their formation. The long established absolute alcohol injection of amputated nerves is probably definitely harmful and there is no proof that its use is beneficial. In amputating a nerve, Livingston[1] injects the sheath with saline or novocaine, cuts the sheath and then, by traction on the nerve, cuts the nerve stumps at a higher level, thus, after retraction, giving him enough sheath to tie together over the amputated nerve fibers. The nerve sheath then heals before the nerve fibers have a chance to regenerate and the high amputation of the nerve keeps it from becoming involved in the healing stump area, but he does not feel that even this guarantees against neuroma formation.

Summary

CAUSALGIA and post-traumatic pain syndromes or causalgia states present a problem not infrequently seen, poorly understood, frequently misdiagnosed and often poorly treated.

This presentation aimed at presenting briefly a re-

view of pain mechanisms; an attempt to appreciate that an irritation of sensory nerves may initiate clinical states that are characterized by pain and a spreading disturbance of function in both somatic and visceral structures.

References

1. LIVINGSTON, W. K.: Pain Mechanisms. MacMillan, New York, 1943.
2. LIVINGSTON, W. K.: Phantom Limb Pain. *Arch. Surg.*, 37:353, 1938.
3. LEWIS, T.: Pain. The MacMillan Co., New York, 1942.
4. BAILEY, A. A., and MOERSCH, F. P.: Phantom Limb Pain. *Canadian M.A.J.*, 45:37, July, 1941.
5. HOMANS, JOHN: Minor Causalgia. *Ann. Surg.*, 113:932, June, 1941.
6. FUCHS, ADOLF: Causalgia, Symptoms, Surgical Treatment and Nature. *Wien. Klin. Wchnschr.*, 53:632, August, 1940.
7. SLAUGHTER, R. F.: Relief of Causalgic-Like Pain by Sympathectomy. *J. M. A. Georgia*, 27:253, July, 1938.

The Treatment of Burns

—The Pressure Ointment Method—

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IN THE treatment of burns one important factor has been consistently overlooked, namely the danger of thrombophlebitis and its complications.

The treatment of burns has two objectives, the restoration of the destroyed tissue, and the prevention of infection. The first objective is achieved by the application of suitable dressings impregnated with medication which promote the cleansing of the wound, the formation of granulation tissue, the restoration of destroyed tissue, and also alleviate pain.

The danger of infection in burns is caused mainly by one factor, the presence of thrombosed veins in the burned area. As Dr. Max Askanazy,[1] professor of pathology of the University of Geneva pointed out, the inflammation of the tissues which is caused by the effect of heat is complicated in all second, third, and fourth degree burns by thrombosis of the veins in the area of the burn. The thrombosis of the small veins in the burned area is found either immediately after the burn, or develops soon afterwards. It is caused by the damaging action of the heat on the walls of the veins. We have, therefore, in every burn (except those of the first degree) a thrombophlebitis of small veins in the affected area. This thrombophlebitis is at first sterile. It is of the utmost importance to prevent infection of the affected veins; for once the inflamed wall of the vein and the thrombus become infected, the infection will gradually spread to the deep veins. As, according to modern pathological conception phlebitis is the basis of sepsis, it is possible to prevent the development of sepsis from a burned area by removing the thrombophlebitis in the small veins of the burned area before they become infected.

The only way to prevent the infection of the thrombosed small veins is the application of pressure. It is therefore not sufficient merely to apply a medicated dressing to the burned area; for, no matter how effective it may be in promoting the healing of the burn and in alleviating pain, it will not prevent infection of the thrombosed small veins and the spreading of the thrombophlebitis to the large deep veins. The dressing must be applied in such a way that it exerts enough pressure to remove the inflammatory congestion, to promote the circulation, and to prevent the detachment of thrombi from the walls of the affected veins. The decongestion and increased circulation heal the thrombophlebitis before it becomes infected. The pressure prevents the thrombus from detaching itself from the wall of the vein. Furthermore, pressure is the simplest and most effective way to remove the pain which is due mainly to congestion. The ideal method of treatment is therefore the application of a pressure bandage.

The use of pressure bandages for the treatment of phlebitis was originated by H. Fischer[2] and described in his paper on "A New Treatment for Phlebitis."

As a former pupil of H. Fischer, I[5] had occasion to see his excellent results. His method was devised with the aim of eliminating embolism and progressing thrombosis. Fischer's method was rather complicated. With the advent of more suitable bandages for exerting even pressure on the tissues, I was able to modify the original method considerably. I introduced the "combination bandage" treatment for phlebitis. First I cover the phlebitic area loosely with a medicated bandage. Then, over this bandage, I apply a three-inch wide elastic adhesive bandage with strong pressure. The medicated bandage stays wet and pliable under the elastic adhesive bandage.

In burns of the first degree I apply the combination bandage directly over the burned area. The bandages must be applied in a centripetal direction to decongest the area. The elastic compression bandage relieves pain immediately because the tension of the inflamed tissue, especially the periphlebitic tissue, is relieved.

In second or third degree burns the lesions should be covered with gauze soaked in crude cod liver oil. This application is very effective as a soothing, healing, and antiseptic remedy. Besides it facilitates the change of bandages without discomfort for the patient.

I have tried the combination bandages in all degrees of burns and found their effect far superior to any other method. The patients were enthusiastic, as the bandages were very soothing and took away the pain almost instantaneously. The healing process in all cases was amazingly short and very good in its cosmetic effect. The simplicity of application makes this method fit for any first aid treatment. The sooner the bandage is applied to any burn, the quicker and better the results.

A few case histories may illustrate my experience with this method.

A child, eight years old, had a first and second degree burn on her right thigh and leg. I applied the bandages by starting just above the ankle and going up to the groin. The pain stopped immediately. I changed the bandage on the third day. In six days there was no trace left of the burning.

A young lady burned her left arm and hand. I bandaged each finger separately with medicated bandages under slight pressure. Then I bandaged the forearm up to the elbow in the same manner. The pain stopped and the lesion healed in 10 days. I had to change the bandage only twice.

A man burned himself on the chest. I wrapped the whole chest with medicated bandages and covered them with elastic adhesive bandages under quite some pressure. The healing process took place in a few days.

The treatment is so simple that in the absence of a physician any person trained in first aid can apply the treatment immediately. The pressure treatment shortens the treatment of burns considerably and relieves the pain to a great extent.

The pressure treatment for burns has found enthusiastic support from many authors.

V. E. Siler[3] reports: "It is rapidly becoming a well established fact that the trend in definitive treatment of the burned area is the pressure ointment type of dressing. This method fulfills many of the factors to be desired: protection of the wound, comfort and ease in handling the patient, and minimal plasma loss from the wound, and promotes a granulating wound which may be grafted much sooner than third degree areas treated by the eschar methods. Furthermore, this dressing permits rapid visualization of the areas at any point in the progress of the patient."

The same author and M. R. Reid[4] state: "Suffering was strikingly decreased by this method of treatment.

It rarely was necessary to use morphine or codeine for more than a day or two after operation. The patients could move about much more easily. There was a great saving in dressing materials when compared with other methods which require frequent changes of dressings or compress therapy. Temperatures returned to normal levels rapidly. These patients rapidly regained their water balance by oral fluid; parenteral administration was required only in the more severe cases. Solid food was enjoyed early in convalescence. It is the authors' belief that the careful preparation of the wound, under anesthesia, and the long duration of the primary dressing definitely lessened the incidence of infection. The pressure dressing may aid materially in preventing the loss of plasma at the site of the wound and into the surrounding tissue."

References

1. ASKANAZY, MAX: Schaedigungen durch thermische Einfluesse. (In Aschoff's Textbook of Pathology, 4th Edition, Fischer, Jena, 1919).
2. FISCHER, HEINRICH: A New Treatment of Phlebitis. *Med. Klin.*, 1910, Heft 30.
3. SILER, VINTON E.: The Trend in Treatment of Burns. *Cincinnati J. Med.*, 24:163, 1943.
4. SILER, VINTON E., and REID, M. R., Cincinnati: Clinical and Experimental Studies with Koch Method of Treatment of Heat Burns. *Ann. Surg.*, June, 1942, p. 1106.
5. MEYER, OTTO: Treatment of Thrombophlebitis with Fischer's Pressure Bandages. *Muench. Med. Wchnschr.*, 13, 1938, p. 486.

The Clinical Aspects of Heat Diseases

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ALMOST everyone is familiar with the depressing effect of continued hot sultry days and with the decreased ability of men to perform work in high humidity atmospheres at high temperatures. Although these effects of heat can be measured to a certain extent as reduced physical work capacity, to a large degree the effects are intangible and represented only by laziness, loss of "pep," and other equally vague signs. On the other hand, there are clinical entities with definite symptoms which result from exposure to excessive amounts of heat and which present a rather definite syndrome. It is with these entities that we deal here.

Heat may be absorbed by the body by radiation from hot objects or from hot air by conduction. As this heat accumulates in the body, an effort is made by the regulatory mechanisms to dispel it. In order to lose this heat, the body may radiate it to cooler objects; or lose it to surrounding air, provided the air is cooler than body temperature; or it may lose heat by the evaporation of sweat. At normal temperatures the latter accounts for only a small percentage of heat loss, but at higher than normal temperatures, it is by far the most important means of heat loss. The amount of heat that can be lost in this manner bears an inverse relationship to atmospheric humidity. In very high humidities the sweat cannot evaporate and merely runs off, accomplishing negligible loss of heat.

Let us consider a man doing heavy physical labor at an open hearth furnace on a hot, sultry day where the air temperature is above the body temperature and the relative humidity is 96%. He constantly produces heat by the muscular work that he is doing; he absorbs terrific heat from the furnace by radiation and an additional amount from the surrounding air. As body temperature rises, a peripheral vasodilatation occurs to hasten heat loss by radiation; sweating becomes profuse but fails to cool since the sweat cannot evaporate. The vasodilatation would cause a fall in systolic blood pressure were it not concurrently compensated for by a quickening of the cardiac rate. As body temperature increases still farther, these effects become more and more pronounced until circulatory collapse results. In an environment such as that described above, a man would soon collapse. Usually however, air temperature and humidity are lower than this and the man is able to cool himself to a certain extent by sweating. As a result, his temperature rises slowly; sweating continues profusely for a long period of time; the man becomes markedly dehydrated, and owing to loss of salt in the sweat, he becomes sodium and chloride deficient. He will exhibit, in time, some degree of circulatory collapse and will be forced to stop work in complete exhaustion. When removed to a cooler place, he may become over-cooled and body temperature may fall to subnormal levels.

Such are the circumstances which precede heat cramps and heat exhaustion. Occasionally after long exposure to extreme heat and work, heat stroke (sun stroke) occurs, but this condition is rather rare in our series of cases and will not be discussed here.

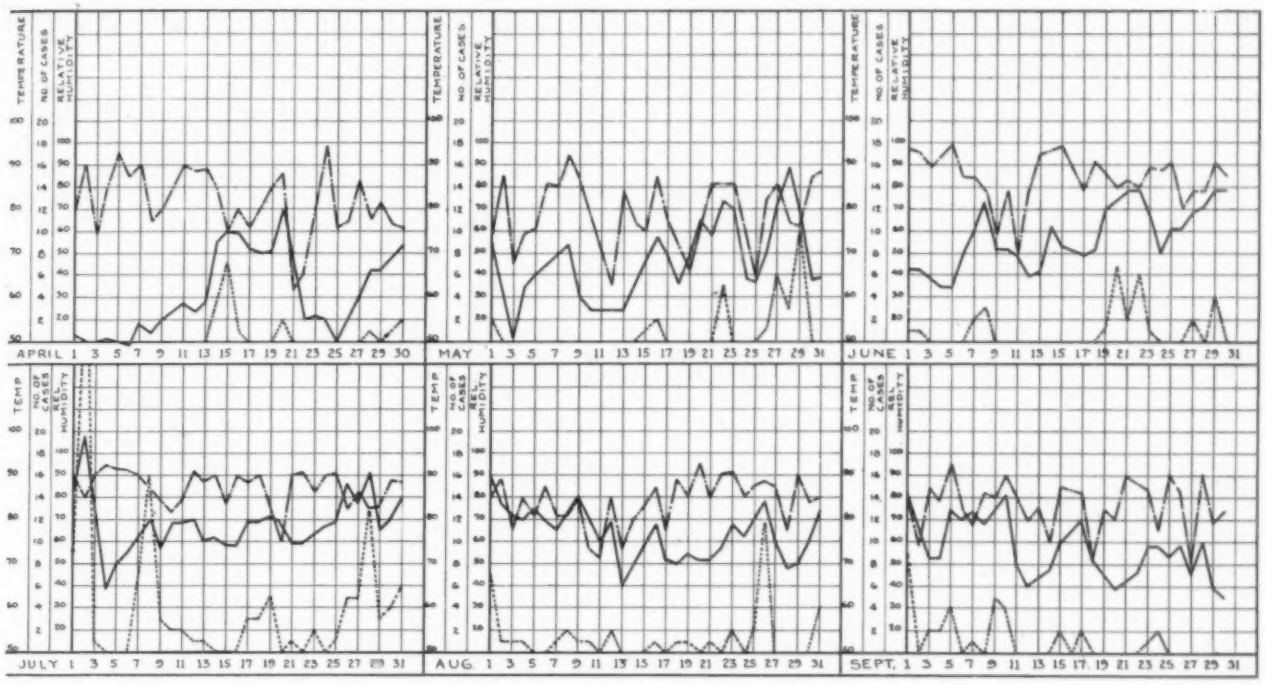
The series of cases to which we refer is composed of 437 cases of heat disease occurring in a steel mill during consecutive summers. These men were exposed, while doing heavy work, to very large amounts of heat around furnaces, soaking pits, coke ovens, hot metal slabs, etc. Under such conditions a high incidence of heat disease is expected, and, although we have an occasional case in cool weather, a marked correlation in incidence with changes in the weather has been consistently observed. There has been a large number of cases with each sudden rise in atmospheric temperature. (See accompanying chart.) There was little or no correlation of incidence with humidity. As Talbott[1] has stated, most jobs where heat is excessive are accompanied by high humidity and heat disease occurring at such jobs is not so much due to high humidity as to high working temperature superimposed on high atmospheric temperature.

Other factors are also active, one of the most important of which is individual resistance. This varies, of course, with the employee but also each employee's resistance varies from time to time. After working several daily shifts, the worker is less likely to succumb to heat than if he had been off from work one or more days; 44.1% of all 437 cases were off from work the day before they developed heat disease.

Two clinical entities are usually described: (1) Heat cramps and (2) heat exhaustion. With the cases reported here, there has not been a clear clinical distinction between the two entities and any one case may have shown signs and symptoms of both. A description of the symptomatology of each may be found in any standard work on the subject. Any given case presents a greater or lesser degree of circulatory collapse with a high pulse rate, usually a moist skin, and extreme exhaustion nearing the point of total collapse. Muscle cramps may or may not be present. Sweating may or may not have stopped. The oral temperature is a little subnormal or normal and nausea may be present. Of this series of 437 cases, there were 58.1% with cramps accompanied by varying degrees of exhaustion, and 41.9% with exhaustion alone. The following is a comparison of the symptomatology of heat cramp and heat exhaustion cases in this series.

ADMISSION TEMPERATURE. The highest temperatures were 101.6° F for cramps and 102.0° F for exhaustion. The lowest temperature for cramps was 94.0° F and for exhaustion 96.0° F. Cramp cases averaged an admission temperature of 98.0° F, and exhaustion cases 97.8° F. Thus it is noted that there seems to be little difference in temperature between these two clinical entities. The average temperature for all cases on admission was 97.9° F.

PULSE. The average pulse rate on admission for



FOR THE SUMMER OF 1941
AVERAGE DAILY TEMPERATURE ————
NUMBER OF HEAT DISEASE CASES ·····
AVERAGE DAILY HUMIDITY % ———·———

cramps was 89.8 and for exhaustion cases 88.1. Average for all cases was 88.9. Again, note no significant difference in these two entities.

RESPIRATORY RATE. The average rate of respiration on admission for cramps was 21.8, for exhaustion 21.1, and for all cases 21.5. Here again, there is no significant difference between exhaustion and cramps.

NAUSEA OR VOMITING OR BOTH. Of the cases with cramps, 10.6% showed nausea or vomiting; while of the cases of exhaustion alone, 24.0% had one or the other of these symptoms.

SWEAT STOPPAGE. This symptom was observed in 26.3% of all cases but was usually of short duration, lasting on the average 1.03 hours per case. Most frequently the cessation of sweating occurred while the patient was still working and was a preamble to collapse. The majority had resumed sweating by the time they reached the clinic. Contrary to the opinion of some authors, this symptom does not occur only in cases with cramps; 29% of the cases with cramps and 23% of the cases without cramps in this series gave a history of sweat stoppage.

ADDITIONAL SYMPTOMS. (1) Cramps: They were found to occur in almost any voluntary muscle group in the body but with more frequency in the abdominal wall and extremities.

2. Dizziness: This was an occasional and inconsistent symptom and always of short duration.

3. Headache: This occurred only rarely and was not severe.

4. Chilliness: This was a rather frequent complaint and was probably due to rapid cooling before reaching the clinic.

It is apparent then, that the cases varied considerably in severity also in minor symptoms exhibited, but with the exception of the cramps themselves and possibly of nausea and vomiting, we found no clinical difference between cases with cramps and those with exhaustion. We have seen men in complete exhaustion with marked muscle cramps.

Many extraneous factors also exert an influence on the incidence of heat disease. It is well known that alcoholics are more prone to heat exhaustion and cramps than are non-alcoholics, but only 5.9% of these cases admitted consuming alcoholic beverage of any kind during the 24 hours preceding the onset of symptoms. Probably an acute alcoholic bout with loss of sleep and lack of proper nourishment is of more importance in predisposing to heat disease than chronic alcoholism. In the past, it was assumed that an excessive intake of water was a predisposing factor. In this series of cases the average amount of water consumed per man during the 24 hours preceding the onset of symptoms was 2.05 quarts, but many men used as little as ½ pint and many others up to 2 gallons. From experience with these cases, it seems that a large amount of water taken at any one time has a deleterious effect owing to depletion of chlorides. There were cases of practically all ages, but cases occurring in older men were usually more severe and recovery was slower. This was probably due to the weaker cardiovascular systems of the older men. The average age for cramps was 36.2 years and for exhaustion cases 33.4 years.

Treatment

GENERAL: All cases were put to bed. If cold, blankets and hot water bottles were used to bring the body temperature to 98.6° F, and to prevent further chilling.

Specific: Heat (hot water bottles) applied to site of cramps. A mixture of ½ teaspoonful of salt and 1 teaspoonful of dextrose in a glass of water was given orally—and repeated every 15 to 30 minutes until symptoms subsided. This in all cases not in collapse. Intravaneous administration of saline and glucose is more effective and should be used in all severe cases. We do believe however that in the majority of cases—rest in bed, local heat, salt and dextrose by mouth will suffice.

It was necessary to use the intravenous method in only three of these 437 cases.

All symptoms were relieved in 15 to 45 minutes.

Circulatory stimulants were given only when the severity of circulatory collapse warranted.

Morphine was given in a few cramp cases but we feel the saline and glucose gives the needed relief.

RESULTS OF TREATMENT. As has already been stated, recovery was rapid and complete. The patients were kept in the clinic in bed, on the average, 2 hours and 36 minutes per case; however, some were kept as little as 15 minutes and one as long as 24 hours. The illness was mild in 30.8% of the cases and the patients were allowed to return to light work after a short stay in the clinic. But the majority of the cases were sent home after the temperature returned to normal and they felt well. These men returned to the clinic the following day for examination. If they were normal at that time, they were allowed to return to their regular work. 69.2% of all cases lost time from work in this manner and averaged 1.77 days lost per man or a total of 535 days lost.

PREVENTION. This is the most important aspect of the whole problem of heat disease. It is customary to give workers salt tablets when they are exposed to extreme heat, and for this purpose, tablet dispensers are conveniently located for the use of all workers in environments liable to produce this disease. It has been found, for reasons as yet unexplained, that salt and dextrose given together are more effective than salt alone in the prevention of heat disease. We use a tablet of 3 grains of dextrose and 7 grains of salt, and advise the men to take one or two tablets each time they take a drink of water. Properly taken, then, the worker will get 30 to 80 grains of sodium chloride per day. It is interesting to note that a large number of the men (59.4%) in this series of cases admitted having taken no tablets and the average amount of salt taken during the day by those who did take the tablets was only 20 grains per case. The average amount of lost time among those taking no salt was 2.3 days per case while among those taking even small amounts, the average lost time per case was 1.3 days. In other words, the severity of illness was 50% less when even small amounts were taken. It is also of interest that there were only a few cases who had more than one attack of the malady in one year (5.2% of all cases)—it seems that one attack was enough to convince the average worker that it was advisable to take the salt and sugar tablets.

Other suggestions are:

1. Plenty of rest at home for the worker especially during his day off.
2. Abstinence from the use of alcohol.
3. Avoidance of ingesting, at any one time, large amounts of water.
4. It has been suggested but never proved that vitamin "C" is also of value in prevention of heat disease. The effects of vitamin "C" and the physiological and chemical changes of the blood will be discussed in relation to heat disease in a future paper on the subject.

Summary

FOUR hundred and thirty-seven cases of heat disease are reported with a brief description of the usual physical and physiological disturbances leading up to an attack of heat cramps or heat exhaustion. Atmospheric humidity and temperature are correlated with the incidence of heat disease showing a high correlation with sudden rises in temperature but little, if any correlation with humidity changes. Other predisposing factors and methods of treatment are enumerated and discussed.

CONCLUSIONS AND RESULTS. Considering clinical symptomatology, the two entities, heat cramps and heat exhaustion, seem to have very few differences. They are probably merely variations of one clinical syndrome, and not so clearly separable as heretofore thought.

Salt and dextrose given together seem to be more efficient in the prevention of this syndrome than salt alone.

Oral administration of normal saline and dextrose will suffice in the treatment of all but the most severe cases. Only rarely is it necessary to use the intravenous method of administration.

Rest in bed is important. With dry skin and lowered temperature cover with blankets. Keep all parts covered until perspiration appears.

Of the 437 cases reported, only a negligible few stated that they had taken the proper amount of salt (dispensed in tablet form) previous to the attack. Those who took even small amounts of salt as a preventative, lost, on the average, only 50% as much time from work as did those who took no salt tablets at all.

Studies on the chemical and physiological changes of the blood during an attack of heat disease will be reported in a future article.

Bibliography

1. TALBOTT, J. H.: *Medicine*, 14:323:1935.
2. BAETJER, A. M.: Nelson Loose-Leaf Medicine, 1937 revision.
3. FERRIS, *et. al.*: *J. Clin. Investigation*, 17:249:1938.
4. WEINER: *J. Indust. Hyg. & Tox.*, 20:389:1938.
5. MCCONNEL and YAGLOW: *J. A. M. Soc. Heat & Vent. Eng.*, 31:35:1925.
6. LEE, *et. al.*: *M. J. Australia*, 2:249:1941.
7. FANTUS, B.: *J.A.M.A.*, 103:990:1934.
8. SHOUDY, L. A., and BAETJER, A. M.: *Surg., Gynec. & Obst.*, 62: No. 2A:1936.

Back Strain in Industry

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HARDLY a magazine or periodical pertaining to industrial medicine or industrial accidents ever has an issue that does not include an article on "Back Strain" or "Backache."

Industrial physicians would probably rather treat most any other type of injury than back strain, owing to the fact that the industrial physician can never tell whether he has a long, lost-time injury on his hands or whether the injured person has a very minor muscle or ligament tear or strain, or other back lesion.

In view of the fact that back strains are apparently a bugbear to management, the safety engineer, the worker himself, and to the industrial physician, it seemed desirable to check up on the experience of this company to determine just how serious the back injuries have been in the past 10 years and how much disability these injuries have caused in this particular industry.

The types of work done in the Dennison Manufacturing Co. are what are found in the average manufacturing company. There are plenty of jobs on which a man or woman could easily get a back strain or other back injury. Education on how to lift is the best preventive measure for back injuries, and this educational feature has been stressed particularly through talks and demonstrations in all departments of the factory, by factory bulletin board notices, and by proper instruction of the new employee by the foreman or supervisor on the best methods for doing what lifting is necessary in connection with his new job.

The procedure in the medical department whenever a man comes with the story "I have hurt my back" is as follows: The injured person is given a complete physical examination. This examination is important, as the cause of the backache may be found to be something other than a strain, or contributing factors to the backache may be discovered; also factors such as obvious focal infection which may prolong the pain and disability of the back lesion.

The back itself is carefully examined to locate the

site of the damage and to note any anatomical defects, muscle spasm, tender areas, postural compensations, and other objective symptoms. If the man is not completely disabled, gentle manipulation of the extremities is done, and often this simple procedure seems to alleviate symptoms. We have given deep injections of a local anesthetic into the muscles of the lower back and, although the effect has been that of immedate relief, the effect in our hands has not been lasting and regular procedures have had to be instituted.

The routine treatment which has succeeded in the great majority of our back strains has been the strapping of the back with adhesive tape after painting the area with tincture of benzoin, followed by diathermy or infra-red ray therapy to the affected part daily, and aspirin, grains X, every four hours—for relief of pain and muscle spasm. In most of our cases this treatment has been successful.

In those cases of back strain that do not respond to the simple measures as outlined above, complete rest in a firm bed with an "orthopedic" board between mattress and springs is the best treatment. Any back injury which does not improve in a few days should, of course, be x-rayed at once and, where great violence has obviously occurred, x-ray is indicated immediately.

It is the writer's opinion that the great majority of back strains in industry are of a very minor nature, do not cause much lost time, and are given too much publicity as a major cause of lost time due to injury. It is only the occasional back strain, in this factory at least, that has caused a great deal of lost time.

The following figures give a resumé of our experience with back strains over a 10-year period:

Eighty-seven persons had industrial back strains from 1932 to 1941—an average of less than nine per year;

Nineteen of these persons lost a total of 544 days—an average of one week for each of the 87 back injuries over the 10-year period.

This is not a true picture of the story, because two men during this time lost six months each on account of back injuries. These two injuries were questionable industrial accidents, as both men were and had been professional wrestlers, with plenty of opportunity for back injuries in this strenuous game.

If these two unusual cases are taken out of the picture, there is an average lost time from back injuries in this factory over a 10-year period of only three days per back strain. This figure or the figure of six days per person would not seem to indicate that back injuries are such a potential cause of lost time. Sixty-eight persons with back strains out of a total 87 back injuries did not lose any time at all from work. Three of the back cases occurred in woman—one of whom lost 36 days.

Summary

A STUDY of industrial back injuries over a 10-year period shows that the total lost time per year caused by back strains is only five weeks per year, in a factory employing an average of 2200 persons—half men and half women.

Except for two unusual and doubtful back cases, the total lost time per year is only two and one-half weeks.

Only 19 of the 87 persons who sustained back strains lost any time from their factory duties.

It would seem from this experience that back strains as a cause of lost time in industry have had far more attention from industrial physicians and safety men than is warranted. There are many other types of industrial injuries that deserve as much or even more attention in the medical journals, and at medical meetings, both from a preventive and curative point of view, than back injuries.

Hernia, Actual, Potential and Healed

—Prevalence in Defense Workers as Found at a Naval Supply Depot—

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IN FEBRUARY of 1942, Naval Project No. 5200, located at Mechanicsburg, Pennsylvania, set up a Pre-Medical Examining Board, to examine physically all applicants for work. As the work progressed, the prevalence of hernia, both actual and potential, became increasingly obvious and finally startling.

Pre-Medical's function was to secure a complete physical report through questioning and examining the applicant, be he skilled or unskilled laborer.

The board was empowered definitely to accept or reject an applicant and authorized to recommend and demand certain mechanical, surgical and therapeutic corrections where considered feasible.

Abdominal belts, teeth extractions, trusses, glasses, elastic supports, and stockings, medical and institutional treatment were but a few of the many suggestions used in order to rehabilitate men otherwise physically unfit to carry on a full day's work under the rigorous conditions demanded by inclement elements and a 10-hour, six-day week job that started in open wheat fields and progressed to a city of cavernous warehouses.

Our work was directed mainly toward the utilization of the greatest amount of manpower that could be gotten from a depleted labor situation, caused by the pressure of war.

It is worthy of note that over 160 men above the age of 65 filled positions of one type or another in this construction work—men who without an examination would have been rejected as physically unfit were put into work they were able to perform. Men with the loss of an arm applying for labor work were reclassified, if otherwise physically fit, and allowed to carry water. Many of the more intelligent, with slight physical deficiencies or deformities were made tool checkers or field clerks, or placed in other classifications their deficiencies allowed them to perform.

Pre-hiring examinations of prospective employees helped to solve the problem of work for every man willing to work.

Several things must be kept in mind, namely, that over 14,000 men, ranging from common laborers to highly skilled mechanics, passed through Pre-Medical and gave an exceptional cross-section of the laboring defense worker. Also, it must be noted, that the demands on labor, due to war work and induction into the fighting forces, undoubtedly lowered the physical fitness of the entire picture.

Through questioning and examination of 14,175 cases, a careful history was secured, covering previous sickness, compensation cases and physical defects. Of this group, 12,101 men were between the ages of 18 and 50, and 2074 were over the age of 50.

No histories of the causes of hernia were taken after the first few efforts resulted in confused ideas on the part of the examined men. Both the skilled and unskilled laborers in almost every instance were unable definitely to point to the cause or series of causes producing a defect in the containing and restraining structures of the abdomen. With these beginning failures, all later information as to the causes producing the actual or potential hernia was disregarded as being untrustworthy.

Our main interest centered on the fact that the presence of actual and potential hernia was high. Roughly, one man in every five had, or was in a position easily to contract, a hernia condition.

The use of the term "hernia" will be the same as defined by Harvey B. Stone, M.D., in his article on "Hernia," i.e., "A protrusion of abdominal contents beyond the normal confines of the abdominal cavity," and will include congenital as well as post-operative conditions. Potential hernia means "a defect in the containing and restraining structures of the abdomen but protrusion has never taken place." Healed hernia designates "a result of therapy or spontaneous changes."

Actual hernia, of course, ran much lower than potential hernia, while actual hernia in men above 50 years totaled over twice the percentage of the younger group; 3.71% of the men between 18 and 50 years compared favorably with 9.2% for the older class of white men. The negro percentage ran considerably lower, namely, 2.7% in the younger ages and 6.1% in the older brackets.

In white workmen, right herniae were found in 361 cases out of 11,953, in comparison to 279 left hernia. The negro showed about an even comparison, with 44 right herniae in 2074 cases against 27 left hernia. The total of 640 right and left herniae in the white men ran higher than the total of 71 in the negro workman.

In cases of potential and operated herniae, no differentiation in race was made. Potential right hernia totaled 794 in 14,175 men, while left herniae came to 725, showing a graph curve about the same as that found in actual hernia conditions.

Successfully operated herniae, either right, left or bilateral, were 401 against 17 unsuccessful attempts. Of the 2.9% operated cases, 44 were unsuccessful.

	18 to 50 Years	Over 50 Years	Totals
White Right	221	140	361
Negro Right	34	10	44
Actual Right Herniae			405
White Left	160	119	279
Negro Left	20	7	27
Actual Left Herniae			306
Actual Right and Left Herniae			711
Potential Right	717	77	794
Potential Left	654	71	725
Potential Right and Left Herniae			1519

The graph rise of right and left herniae in the white workman ran parallel with the negro, showing almost an exact line, equidistant, as did the line between right and left lines of combined white and black. The line of right and left, white and black potential and actual hernia shows a wide divergence.

Quite a pronounced difference can be noted between right and left actual hernia as well as between right and left potential herniae, in each instance the right being the more numerous.

A truss was the prerequisite of securing work in every case of actual hernia and in many instances of potential hernia, where the inguinal rings showed marked openness with decided muscular flaccidity.

The main conclusions drawn from our work are that actual right hernia supersedes actual left hernia; that potential hernia is far in excess of actual hernia, and that actual hernia is more prevalent in the white than the negro workman.

In the following instances, our Pre-Medical Examining Board actually fulfilled the work it set out to accomplish, namely, the securing of information on previously existing actual, potential and operated herniae, in relation to future hernia accidents sustained on the project, as well as a certain amount of control on the chronic compensation procurer. It also redirected the physically deficient into work they could and did perform efficiently.

The actual period involved in the above was from February, 1942, until August, 1942. The total number of men examined up until August was 14,175. This article covers only the above period. The actual cessation of work did not occur until July 1, 1943.

The period from August 1, 1942, to July 1, 1943, would, without doubt, have involved the examination of some 6000 to 8000 more employees. No attempt was made to tabulate this latter group.

The total men examined for the period from February, 1942, to July 1, 1943, ran well over 20,000. Owing to the pressure of the war and the shortage of time, the latter group were not catalogued.

Chapter 9, in Lewis's "Practice of Surgery," Volume VII. W. F. Prior Company, Inc.

Dislocations of the Knee Joint

—And Their Complications—

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OUR GROUP—Cubbins, Callahan and Scuderi—have decided that it is far better to describe the injuries of these ligaments as "Dislocations" or "Partial Dislocations," because it is quite obvious that it is impossible to have these ligaments injured without displacement of the tibial plateau from the condyles of the femur.

It is our opinion that the early diagnosis of dislocation or partial dislocation of knee joint ligaments has been seriously neglected, and we wish to urge a much more careful examination of every knee joint in which fluid has accumulated and in which there is a certain amount of disability, so that these cases may be recognized and an immediate and complete immobilization of the joint made, thus saving a large amount of disability and avoiding the dangers of reconstruction operations.

The most common injuries to knee joint ligaments, if we except fractures of the patella, are:

1. Avulsion of the collateral tibial ligament.
2. Rupture or avulsion of one or both cruciate ligaments, accompanied by rupture or avulsion of the collateral tibial and collateral fibular ligaments.

Sir Robert Jones stated that dislocations of the knee joint, when immobilized about four to five months, make excellent recoveries, with a very small amount of disability. We are perfectly willing to admit that there is a certain percentage of these injuries that do make excellent recoveries, but we doubt if the percentage is greater than 20 to 25.

An early operation upon dislocated knee joints is strictly contra-indicated and the immobilization of such an injury for five to six months will not constitute a loss of time, because, in our opinion, if, at the end of this period of immobilization, the knee joint has not stabilized itself these ligaments can be reconstructed so as to give an excellent and serviceable joint.

Surgeons, residents and interns in every trauma ward must be carefully instructed to the effect that when an individual enters with an injury to the knee joint, careful tests must be made to determine the amount of antero-posterior motion of the tibial plateau upon the head of the femur, with the knee flexed at a right angle. The next test should be to determine the degree of lateral motion with the limb in a straight angle, because it is common knowledge that a normal knee joint has no lateral motion with the leg in complete extension.

Another thing that should be done, but which is

not so simple as it sounds, is to grasp the lower end of the femur and the upper end of the tibia and push and pull, in order to demonstrate whether or not there is any slippage of the plateau of the tibia upon the femoral condyles.

These three fundamental tests will serve to tell the examining surgeon the extent of the injury and enable him to make the correct diagnosis and prognosis. It has not been unusual for these cases to enter our wards and to have the condition overlooked until the rounds were made by the attending surgeons. However, of late, this has been a rare occurrence and "dislocation of the knee joint" is coming to be a far more frequent early diagnosis than was formerly the case.

To repeat, it is not uncommon to find a knee joint that has been completely dislocated and, then, forced back into normal position, and the patient lying on a stretcher with no evidence of a serious injury, except some swelling of the knee joint. X-rays are negative and the simple diagnosis of a "sprained knee" is made, unless these tests enumerated above are carefully carried out. Abnormal motions in these apparently normal knees are frequently as great as two inches of forward and backward play of the tibial plateau upon the head of the femur, with a lateral or medial displacement of the tibial plateau upon the condyles of the femur of one inch and, in some cases, a complete dislocation in any direction can be made with little, if any, anesthesia.

In an injury of the type described above the deviation of the leg upon the thigh is often as much as 35°, either medial or lateral.

In injuries of the collateral tibial ligament it has been our experience that the collateral tibial ligament is seldom, if ever, torn transversely except when associated with an injury of both cruciate ligaments. However, it is very common to find this ligament avulsed from its attachment to the femoral condyle. The symptoms of this condition are a slight lateral deviation of the extended leg and a slightly increased deviation of the flexed leg, with a marked point of tenderness over the medial condyle of the femur. The x-rays may show a fragment of bone avulsed with the ligament, or they may be negative. The treatment of this condition has been the immobilization of the limb for eight to 10 weeks, with complete extension. The recoveries have been perfect, but there is always a bony growth on the medial condyle at the end of this period, irrespective of what may have been shown when the injured person was first examined.

Lesions of the collateral fibular ligament have not been so commonly observed in our wards. We have not found the detached collateral fibular ligament, either from the femoral condyle or from the fibular head, in any case that has not also had a complete dislocation. In two cases of complete dislocation of the knee joint we have had oblique ruptures of the collateral fibular ligament.

In making a diagnosis of an injury of the collateral fibular ligament or of the collateral tibial ligament a very careful study of the plateau of the tibia must be made with the x-ray in order to avoid confusing the diagnosis of these injured collateral ligaments with depressed lateral or medial plateaus. When first we began to operate upon these injured knees we were in doubt as to whether the depressed lateral plateau or depressed medial plateau could be responsible for the large amount of deviation which the extended leg would show. So, without hesitation, we made extensive incisions over these ligaments in order to determine just what pathology was present. And it may be added here that as yet we have not observed more than 2% of these plateau injuries that have been accompanied by an avulsion of either collateral ligament, and in no instance has it been accompanied by a transverse rupture of either collateral ligament.

The next factors to be discussed are the complications most commonly seen in dislocated knee joints. They are:

1. Compression of the blood vessels in the popliteal space.
2. Tearing of the vessels in the popliteal space.
3. Injuries to the nerves in the popliteal space.

These are far more commonly present and more severe when the tibia is dislocated backward than when the tibia is dislocated anterior. Many times, upon reduction of a dislocated knee, the vessels resume their function and there is little, if any, disturbance of the popliteal nerve, although a foot drop, following an injury to the perioneal nerve, may follow. On the other hand, many times the vessels are seriously torn and repair is impossible and, if repair is attempted, the injury to the collateral circulation is so serious that, unless the repair is perfectly made, the leg is certain to be lost. It would be impossible in this short paper to describe the appearance of tissues in the popliteal space of a dislocated joint. It is this serious injury to the surrounding tissues that has made us favor the conservative treatment of these legs in which the popliteal vessels have been injured. We suggest that the dislocation be reduced and, if the foot remains cold and blue, that it be wrapped in cotton wool, then placed in a Thomas splint, upon which has been threaded a double thickness of stockinet, so that the limb has an even distribution of its weight with no points of pressure. This splint should be suspended at an angle of 25° above the bed, beneath a large cradle, with a light beneath the cradle of a size adequate to keep a temperature of 100° at the level of the middle portion of the foot. This light must not be put near the toes or a dry gangrene will follow almost immediately.

With this treatment we have saved one leg where there had been a bluish discoloration and a cold foot for 36 hours. In others, where there had been bluish discoloration and a cold foot, we have succeeded in saving the upper third of the leg, so that the patients would not be seriously crippled as they would have been with an amputation at the knee joint. In those cases that were observed immediately following the injury, we have had an almost 100% recovery.

It is well to emphasize that where dry gangrene supervenes it is not safe to attempt an amputation of any portion of the injured extremity earlier than three months following the injury, because if the amputation is attempted earlier a rapidly spreading infection and death of the tissues proximal is not uncommon. And, as a rule, we prefer to wait four full months before amputation is made.

In relation to the late diagnosis of extensive ligamentous injuries following a dislocation the same movements as described above must be made, but it must also be recognized that with a muscular thigh it is impossible to make the diagnosis without the complete relaxation of the patient under full anesthesia. So long as the patient is rigid, or semi-anesthetic, the strength of the great thigh muscles precludes any possible motion of the tibial plateau upon the femoral condyles. When the diagnosis has been made of the ligaments involved, the procedures which we have published, if carried out correctly, will give an excellent restoration of the joint. We have men working as gardeners, ditch diggers, firemen and structural steel workers, who have recovered to such an extent that they are able to resume their occupations and carry on as well as any normal individual.

Reports of Occupational Injuries Attributed to Volatile Solvents

—A Literature Study—

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THE ANALYSIS of case studies, which begins with benzol in this issue,* is a compilation of the records of occupational injuries attributed to inhalation of a few of the more common volatile solvents. The case reports are drawn from medical sources only, that is, either the reports appear in the medical literature or are made by medical men in non-medical literature. In general, the study is limited to American cases.

Some of the cases are cited repeatedly in the literature. In so far as possible, these have been traced back to the original published report and only that report analyzed. In instances where the vapor concentrations were determined by one investigator and the medical report made by another, the two reports have been combined, but the medical report is the source credited. While the study, for some of the solvents, covers a

*THIS ANALYSIS covers bonzol (benzene), carbon disulphide, carbon tetrachloride, trichlorethylene, petroleum solvents, and fire extinguishers. The benzol (benzene) case studies are presented here, with the other studies to follow in successive issues.

AMERICAN OCCUPATIONAL EXPOSURES TO BENZOL (BENZENE) IN MEDICAL LITERATURE FROM 1934 TO DATE

Year	Occupation and Age	Chemical	Degree of Exposure	Length of Exposure	Early Symptoms
1934	Man working in photographic dark room	Benzene	Not stated	Several months	Nosebleed, purpuric spots
1934	Man, age 59	Benzene	Not stated	2 years	Weakness, pallor
1934	Amateur photographer, 53	Benzene	Not stated	3 or 4 nights	Nosebleed, bleeding gums
*1934	Beauty parlor operator, 35	Dry shampoo containing 30% benzene	Not stated	Used shampoo 7 months	Nausea, dyspnea
*1935	Coater, artificial leather	Benzene	150 p.p.m.	Several years	Not stated
*1935	Color mixer, 48	Benzene	180 +p.p.m.	12 years	Numbness, leg cramps, dyspnea
*1936	Color matcher, 45, artificial leather	Benzene	180 +p.p.m.	1 year	Weakness, short breath, dizziness, leg pains
*1936	Studio worker, 38	Benzene, rubber cement	Not stated	1 month	Anorexia
*1936	Chemist	Benzene	Not stated	1½ years	Weakness, anorexia
*1936	Worker, 45	Benzene	Not stated	Not stated	Not stated
*1936	Artificial leather worker	Benzene	Not stated	1½ years	Nosebleed, bleeding of gums
*1937	Artificial leather worker, 37	Benzene	Varied concentration	11 years	Tiredness, mild dyspnea
*1937	Artificial leather worker, 45	Benzene	100 p.p.m. (est.)	Not stated	Pustular infection
*1937	Artificial leather worker, 43	Benzene	100 +p.p.m.	12 years	Weakness, dyspnea, headache, loss of appetite
*1938	Woman cementer of crepe soles, 18	Solvent, high percentage of benzene	500 p.p.m. (est.)	5 months	Vertigo, bruised areas on body, back pains, feverish, spitting blood
*1938	Rubber goods factory worker, 18	Benzene	Not stated	15 months	None stated by patient
1938	Leather worker, 45	Benzene, ethyl acetate and butanol	Not stated	6 months (?)	Headache, irritability, insomnia, purpuric skin spots
1938	130 rotogravure workers in 3 printing plants (six required hospitalization)	Benzene	Ranging from 11 to 1060 p.p.m.	Various periods	Not recorded individually; however 6 of these cases reported by ERF and RHOADS (see below)
				26 year old worker, 3 years	Weakness, anorexia, dizziness
				47 year old worker, 3 years	Weakness, dizziness, fatigue
				75 year old worker, 2 years	Weakness, nausea, dizziness, ecchymoses
				33 year old worker, 2 years	Weakness, ecchymoses, purpuric spots on skin
				29 year old worker, 1 year	Fatigue, anorexia
				20 year old worker, 3 years	Fatigue, dyspnea, irritability
*1938	Artificial leather worker, 54	Benzene lacquers	200 p.p.m.	3 years	Weakness
*1938	Cobbler, 42	Benzene	Est. 25 p.p.m.	For years	Weakness, fever, loss of weight
*1938	Woman telephone operator, 63	Paint remover 50% benzene	Est. 10 p.p.m.	5 years	Felt poorly, loss of appetite

longer period, the objective has been to analyze all the cases reported for the last 10 years (date of occurrence is not always indicated in the literature).

Because all cases are not uniformly reported by all investigators, in certain instances it could not be determined definitely how many individual cases developed from a single exposure; wherever this could be determined, all the cases arising from the same exposure are grouped together.

The symptoms reported in many of the cases are so detailed that it appeared impractical in a tabulation such as this to list all of them for every case.

"Length of illness" generally means the period during which the case report indicated that hospitalization or medical attention or both were required.

Where "recovery" or "full recovery" appears in the table, it was understood from the case report that the patient had been discharged or that examination after a reasonable lapse of time showed no recurrence of symptoms.

IN RELATION to the benzol cases, certain studies not included in the accompanying tables should perhaps be mentioned, though the information given in these studies does not lend itself to similar analysis.

Kammer, Isenberg and Berg (*J.A.M.A.*, October 15,

AMERICAN OCCUPATIONAL EXPOSURES TO BENZOL (BENZENE) IN MEDICAL LITERATURE FROM 1934 TO DATE

Later Symptoms	Length of Illness	Consequences	Ventilation	Reported by
Aplastic anemia, bronchopneumonia	8½ months	Died	Not stated	THOMPSON, W. P., RICHTER, N. W. and EDSAL, E. S.; *Am. J. Med. Sc.*, Vol. 187, p. 81, 1934
Aplastic anemia	24 days	Died	Not stated	Ibid, p. 80
Anemia, hyperplastic marrow	Not stated	Recovery	Not stated	ANDERSEN, D.; *Am. J. Path.* 10, 101-111, 1934
Hypoplastic marrow	Not stated	Recovery	Not stated	ERF, L. A., and RHOADS, C. P.; *J. Indust. Hyg. & Tox.*, Oct., 1939, p. 424
Not stated	Not stated	Died	"Fairly good"	BOWDITCH, M., and ELKINS, H. B.; *J. Indust. Hyg. & Tox.*, Oct., 1939, p. 324
Hyperplastic marrow, anemia	6 weeks	Died	Not stated	HUNTER, J. L.; *J. Indust. Hyg. & Tox.*, Oct., 1939, p. 344
Anemia, septic fever	2 months	Died	Not stated	Ibid, p. 345
Myeloid leucemia	3 months	Died	Not stated	ERF, L. A., and RHOADS, C. P.; *J. Indust. Hyg. & Tox.*, Oct., 1939, p. 423
Hyperplastic marrow, anemia	2 weeks	Recovered	Not stated	Ibid
Aplastic anemia	Not stated	Not stated	Not stated	LEWIS: *J.A.M.A.*, Vol. 107, No. 25, Dec., 1936
Pernicious anemia suspected	5 months	Chronic benzol poisoning	Not stated	HUNTER, J. L.: *J. Indust. Hyg. & Tox.*, Oct., 1939, p. 346
Lobar pneumonia, acute myocarditis	8 months	Died	Not stated	Ibid, p. 347
Anemia, septic course	16 days	Died	Not stated	Ibid, p. 348
Petechial hemorrhages, diarrhea, retinal hemorrhages, enlarged spleen	14 months	Died	Not stated	Ibid, p. 348
Septic temperature, low white blood count	9 days	Died	Not stated	Ibid, p. 348
Lymphatic leucemia	2 months	Recovered	Not stated	Ibid, p. 349
Anemia, leucopenia, thrombocytopenia and macrocytosis	2 months	Died	Not stated	CALE, H. A.: *Arch. Path.* 25:315, March, 1938
Not recorded individually, but summarized to show blood abnormalities in order of frequency, such as diminution of erythrocytes, increase in their mean corpuscular volume, reduction of platelets and hemoglobin	Not recorded individually	No deaths recorded (however, Smith reports 1 delayed death Oct. 6, 1942)	Exhaust ventilation only partially effective	GREENBURG, L., et al: *J. Indust. Hyg. & Tox.*, Oct., 1939, pp. 395-420; SMITH, A. R.: *N. Y. Indust. Bul.*, Vol. 22, 8, p. 329, 1943
Ecchymoses, severe epistaxis, hyperplastic marrow, anemia, leucopenia, thrombocytopenia	1 year	Fully recovered	Not stated	ERF, L. A., and RHOADS, C. P.: *J. Indust. Hyg. & Tox.*, Oct., 1939, p. 425
Ecchymoses, anemia, thrombocytopenia	Approx. 4 months	Fully recovered	Not stated	Ibid
Anemia, leucopenia, thrombocytopenia	4 weeks	Fully recovered	Not stated	Ibid, p. 426
Anemia, hypoplastic marrow, leucopenia, thrombocytopenia	4½ months	Fully recovered	Not stated	Ibid, p. 426
Hypoplastic marrow, anemia, leucopenia, thrombocytopenia	3½ months	Fully recovered	Not stated	Ibid, p. 427
Marrow moderately hyperplastic, anemia	4½ months	Fully recovered	Not stated	Ibid, p. 427
Gum ulceration, typical blood picture	Discharged from hosp. after 3 weeks, reentered 9 days later, remained until death 1 month later	Died	Not stated	HUNTER, J. L.: *J. Indust. Hyg. & Tox.*, Oct., 1939, p. 349
Septic course with fever	6 days	Died	Not stated	Ibid, p. 350
Ecchymoses, bone marrow hypoplasia	2½ months	Died	Not stated	Ibid, p. 351

AMERICAN OCCUPATIONAL EXPOSURES TO BENZOL (BENZENE) IN MEDICAL LITERATURE FROM 1934 TO DATE

Year	Occupation and Age	Chemical	Degree of Exposure	Length of Exposure	Early Symptoms
*1939	Artificial leather worker, 28	Benzene	200+	4 years	Weakness, lesions on feet, aching teeth
*1939	Artificial leather worker	Benzene	200	3 years	Weakness, fatigue
*1939	Machinery worker, 56	Benzene (?)	Not stated	5 months	No complaints stated by patient
1939	Rubber factory worker, 22	Benzene	Not stated	6 months	Headaches, weakness, dyspnea, nosebleed
1939	Artificial leather worker, 54	Benzene	Not stated	7 years	Bleeding gums, ankle swelling, purpuric spots
1939	Shoe factory worker, 20	Benzene 80%	Not stated	8 months	Nosebleed, nausea, fatigue
1939	Leather worker, 25	Benzene	Not stated	3 years	Chills, fever, headache
1939	Cobbler	Rubber cement believed to contain benzene	Not stated	7 years	Fatigue, headache, dizziness
1939	Woman rubber factory worker, 44	Benzene	Not stated	4 years	Soreness of gums, numbness of hands, dyspnea
1939	Furniture finisher, 41	Benzene	Not stated	Off and on for 20 years	Weakness, dyspnea, nausea, headaches
1939	Schoolboy, using benzene paint remover	Benzene	Not stated	Unknown	Severe epistaxis
1940	Pressman, 43	Benzene and color inks	50 to 740 p.p.m.	6 months	Vomiting, rectal bleeding, sore throat
1940	4 male workers in plastic industry, ages, 23, 24, 29 and 32	Benzene used as solvent for vinyl esters	41 to 187 p.p.m.	24 year old male, 3 years	Attack of jaundice, "bruised easily," bled for 2 days following tooth extraction, foul breath, pallor
				others, 1 month to 4 years	2 had enlarged livers, associated with macrocytosis; 1 had normocytic anemia, blood picture in all cases showed indications of early benzol poisoning
1942	Male factory worker	Benzene rubber mixture	Not stated	1 year	"Drunken feeling" prior to admission to hospital 4 years later; weakness, vertigo, nervousness, edema of lower extremities, precordial pain
1942	108 workers in rubber industry	Benzene	50 to 500 p.p.m. average about 100 p.p.m.	Long exposure	Malaise, nausea, vomiting
1942	Worker, age not stated	80% benzene, 15% toluene	Not stated	20 minutes	Dizziness, headache
1943	Employee in finishing room of furniture manufacturing co.	Stain containing benzol	Not stated	5 years	Headache, gas pains, dizziness

*Indicates year of occurrence; other items are year reported.

1938) reported on an investigation of 14 workers. None had lost time as a result of exposure to benzene, which varied from a period of 12 months to 15 years. There were no early symptoms of poisoning, such as loss of weight; however, secondary anemia was found in each case. Other details are not given.

Jephcott and Bulmer (*J. Indust. Hyg. & Tox.*, April, 1939) reported on urinary sulfate tests for 63 men and five women employed in 11 plants where benzol was used. It is stated that "none of the exposed was suffering from chronic benzene poisoning." One hundred and forty-two samples of urine were tested from the 68 men, some of the tests showing abnormalities. Blood abnormalities were also found in some cases.

Dr. P. A. Davis (*J.A.M.A.*, February 17, 1940, p. 557) referred to a case of acute benzene poisoning in which definite leukopenia and erythropenia developed. The urinary sulfate returned to normal in three weeks. Later, influenza developed and when it cleared up, according to Dr. Davis, the worker "still seemed to have benzene poisoning, and the only explanation I have for that is that the blood-forming organs had not returned to normal before he had a subsequent infection or some other involvement." No other details were given.

Rawson, Parker and Jackson (*Science*, June 6, 1941) reported the investigation of the occupational histories of patients in their clinic with myeloid metaplasia and found that several had worked for various periods with benzol or paint remover containing benzol. The report stated that further work on the subject was being carried forward.

Goldwater and Tewksbury (*J. Indust. Hyg. & Tox.*,

AMERICAN OCCUPATIONAL EXPOSURES TO BENZOL (BENZENE) IN MEDICAL LITERATURE FROM 1934 TO DATE

Later Symptoms	Length of Illness	Consequences	Ventilation	Reported by
Acute myeloblastic leucemia	16 days	Died	Not stated	Ibid, p. 351
Early multiple myeloma (?)	14 days	Recovered	Not stated	Ibid, p. 353
Question of chronic benzene poisoning or chronic myelogenous leucemia	Not stated	Recovered	Not stated	Ibid, p. 353 (75 additional cases of benzene exposure reported by Hunter)
Petechial hemorrhages of pericardium, edema of lungs, liver necrosis, increase in fat in bone marrow	Not stated	Died	Not stated	MALLORY, T. B., et al.: *J. Indust. Hyg. & Tox.*, Oct., 1939, p. 366
Pulmonary edema, increased cellularity of bone marrow, skin edema of both low extremities	Not stated	Died	Not stated	Ibid, p. 366
Otitis media, pulmonary and vaginal hemmorrhages, bronchopneumonia, fatty marrow	Not stated	Died	Not stated	Ibid, p. 367
Jaundice, white cell count 16,000-12,000, almost all cells were lymphocytes	14 days	Died	Not stated	Ibid, p. 368
Sternal biopsy hyperplasia, pulmonary embolism suggested	10 weeks	Died	Not stated	Ibid, p. 369
Anemia, retinal hemorrhages, symptoms suggesting peritonitis, vertebral and femoral marrow fatty	5 months	Died	Not stated	Ibid, p. 370
Retinal hemorrhages, marrow fatty but large areas with dense cellularity in which practically no fat was apparent	46 days	Died	Not stated	Ibid, p. 373
Retinal hemorrhages, intense cellularity of bone marrow, white cell count 5,000 to 12,000, red count 900,000, with 25% hemoglobin, aleucemic leucemia	Not stated	Recovered (?)	Not stated	Ibid, p. 374
Bone marrow aplasia, anemia, leucopenia	2 weeks	Died	Not stated	GRAY, I., et al.: *J.A.M.A.*, Vol. 114, No. 14, pp. 1325-1330
High temperature, blood abnormalities, hemorrhages in ocular fundi prior to death, gangrenous stomatitis, "tremendous aplasia of bone marrow"	Approximately 2 years	Died	"Adequate ventilation later installed and new solvent substituted"	HEIMANN, H., and FORD, C. B.: *N. Y. Indust. Bul.* Vol. 19, 1940, p. 224
See consequences	4 months or more	Examination 4 months later showed improvement of blood findings and disappearance of liver enlargement	As above	Ibid, p. 225
Aplastic anemia, diffuse purpura, severe epistaxis and hematemesis, ulceration of gums, blood abnormalities (authors state case of interest because of unusually long time elapsing between exposure and development of aplastic anemia)	Apparently 18 months	Died 14 days after admission to hospital	Not stated	MEYER, L. M., and GINSBURG, VICTOR: *J. Indust. Hyg. & Tox.*, Feb., 1942, pp. 37-38
83 showed mild blood changes, 25 showed severe blood changes, 9 of these hospitalized; ecchymoses, pectechiae, diplopia, aplastic anemia	Not stated	3 died	Exhaust ventilation	WILSON, R. H.: *J. Lab. and Clin. Med.*, Vol. 27 Sept., 1942, p. 1517
Not stated	3 hours	Died	Apparently not good, working in benzene tank	JOHNSTONE, R. T.: "Occupational Diseases," p. 78
Convulsions, toxic encephalitis	Not stated	Not stated	Not stated	*J.A.M.A.*, Vol. 122, No. 7, p. 464

June, 1941) reported subsequent blood studies among the rotogravure workers exposed to benzol reported by Greenburg et al. in 1938 (see table). These studies, made on 108 men, showed that at the end of 24 months, four still had "distinctly abnormal blood pictures."

Central States Society

CENTRAL STATES SOCIETY OF INDUSTRIAL MEDICINE AND SURGERY will hold its Mid-Winter Scientific Session, in Chicago, Friday, December 3, 1943. The morning program will be scheduled from 9:00 A.M. to 12:00 at St. Luke's Hospital, and the afternoon and evening sessions at the Palmer House. DR. W. M. HARTMAN, of Macomb, Illinois, is president of the Society, and DR. J. DANIEL WILLEMS, of Chicago, is program chairman.

Industrial Dentists Association

AT CINCINNATI, on October 12, 1943, the American Association of Industrial Dentists was formally organized, with the following officers: President, C. R. FRICKE, D.D.S., Philadelphia Company, Pittsburgh; President-Elect, ERNEST GOLDHORN, D.D.S, Pullman Company, Chicago; Vice-President, JAMES M. DUNNING, D.D.S., Metropolitan Life Insurance Company, New York; and Secretary-Treasurer, POWELL C. CARREL, D.D.S., Pratt & Whitney Aircraft Division, United Aircraft Corporation, East Hartford, Connecticut. Among the directors are LYMAN D. HEACOCK, D.D.S., Dental Surgeon, U. S. Public Health Service, and GEORGE A. PETERS, D.D.S., Division of Industrial Hygiene, Illinois Department of Public Health.

The Significance of Rising Blood Pressures

—As Shown by Periodic Examinations—

NATHAN SMITH DAVIS, III, M.D., F.A.C.P.,
Chicago

THE major function of the physician in industry is the prevention of industrial diseases and disabilities and of absenteeism due to ill-health. Pre-employment examinations for the selection of workers who are free from infectious and contagious diseases and for the proper placement of the handicapped, have proved to be of great value. Annual "health examinations" of all employees have facilitated the promotion of good health under all circumstances.

It has been shown, however, that annual examinations are not enough in plants using minerals and chemicals which may have toxic effects and cause industrial diseases. In such industries, the frequency of physical check-ups must depend on the degree of health hazard in different occupations. They are most important where there is a possibility of chronic poisoning.

The early symptoms of chronic intoxication with small doses of toxic chemicals are similar to those which may result from "hidden hunger." This suggests that such chemicals may inhibit the action of hormones and respiratory enzymes thus having an effect similar to that resulting from a dietary deficiency of the minerals, amino and fatty acids and vitamins essential for the synthesis of such catalysts. Exposure to toxic chemicals or a lack of essential nutriments may cause the following symptoms:

Unusual fatigue or lassitude.
Headache.
Dizziness.
Gastro-intestinal disturbances (nausea, loss of appetite, fullness of the stomach, frequent eructations, uneasiness or pain in the epigastrium).

The early signs of chronic exposure to low concentrations of toxic chemicals, like those of "hidden hunger," are limited. In either case special equipment or elaborate tests are required for their detection. Foulger states that fortunately there is one sign of exposure to low concentrations of toxic chemicals that can be easily measured—the blood pressure.[1] In my opinion this sign is equally effective as evidence of certain dietary deficiencies.[2]

Several observers have reported finding diffuse or adenomatous hyperplasia of the suprarenal cortex in necropsies on individuals who have had hypertensive cardiovascular renal disease.[3] It is well known that diffuse or adenomatous hyperplasia of the thyroid gland develops when there is a lack of iodine in the diet; that a toxic product is formed by such hyperplastic glands when there is a thyrotoxicosis. May not a lack of ascorbic acid, which is more abundant in the suprarenal glands than in other tissues, be the cause of the hyperplasia that has been described? May this not result in the formation of a toxic pressor substance in place of the epinephrine normally secreted? May it not result in an hyposecretion as a result of which the renin-angiotonin reaction is called into play as it is in dogs in shock because of extensive acute hemorrhage?[4]

Riboflavin is more abundant in the kidney than in other tissues and certain other of the vitamin B factors are also relatively more prevalent than elsewhere in the body.[5] They seem to be essential for the normal de-amination of amino acids by oxidation. Their lack may cause the de-amination by decarboxylation with the formation of pressor amines and renin. It has been reported that rats on diets deficient in riboflavin and other unidentified vitamin B factors develop arterial hypertension.[6]

These hypotheses make it appear that toxic chemicals and certain nutritional deficiencies, like renal ischemia and urinary tract infections,[7] should be considered as possible etiological factors in hypertensive cardiovascular renal disease.

FOULGER reports that brief exposure to low concentrations of chemicals causes a rise in diastolic blood pressure which may continue until definitely abnormal levels are reached and may become fixed.[1] As the systolic pressure does not become elevated early, the first result is a falling pulse pressure. High systolic pressures are not early signs of exposure to toxic chemicals. Higher concentrations of the chemicals which in low concentrations cause high diastolic pressures, may cause low systolic, diastolic and pulse pressures.

The blood pressure should be taken on both arms in accordance with the technique recommended by the American Heart Association and the Cardiac Society of Great Britain and Ireland.[8] Foulger believes that readings outside the following arbitrary "normals" in individuals selected by pre-employment examinations, give evidence of exposure to chemicals or to certain other factors to be mentioned later:

Systolic pressure	100-140 mm.
Diastolic pressure	65- 89
Pulse pressure	30- 58
Difference between the two arms:	
Systolic pressure	0- 20
Diastolic pressure	0- 10
Difference between the 4th and 5th phases of Diastolic pressure, either arm	0- 10

The other factors listed by Foulger which may cause blood pressure changes similar to those caused by exposure to chemicals used in industry are:

1. Improper nutrition (improper as to quantity, quality, timing and especially vitamin content).
2. Improper medication (unnecessary or badly controlled use of the "sulfa" drugs).
3. Self-medication (the use of "pick-me-ups" containing drugs such as the aniline derivatives and alcoholic beverages).
4. Unnecessary exposure to abnormal climatic conditions. Such exposure may cause vasospasm and renal ischemia.
5. Unnecessary mental or physical exertion leading to fatigue or to vasospasm.
6. Disease (which is in essence chemical poisoning).
7. Deprivation of oxygen (resulting from sudden transfer to great altitudes or prolonged work in ill-ventilated enclosures).
8. Any combination of these factors.

Attention should be called to the fact that exposure to any one or more of these causes may initiate a vicious circuit which may result in chronic arterial hypertension. Cellular metabolism may be so altered that abnormal pressor substances are formed. These abnormal metabolites cause vasospasm which causes renal ischemia, which may cause enough more pressor substances to be formed to perpetuate the process even after the original cause is removed.

The important role that improper nutrition may play in the etiology of hypertension is illustrated by studies made on the "Nutritional Status of Aircraft Workers in Southern California."[9] In a large group of workers most of whom were under 30 years of age, it was found that:

1. Nearly every subject showed evidence of vitamin A deficiency.

Presented at a joint meeting of the CHICAGO SOCIETY OF INDUSTRIAL MEDICINE AND SURGERY and the Chicago Heart Society, November 1, 1943.

2. From 17 to 26% showed evidence of thiamin deficiency.

3. Some 9% showed definite evidence; 35%, good evidence and 100% presumptive evidence of past or present riboflavin deficiency.

4. Only 2.1% showed evidence of niacin deficiency.

5. Thirty-two per cent had a plasma ascorbic acid concentration below 0.4 mgm. per cent; another 20% a concentration below 0.6 mgm. per cent (normal 0.7 to 1.2 mgm. per cent) even though the workers were located in Southern California.

6. Eleven per cent had hemoglobin values below 13.4 gm. per 100 ml.

It should be emphasized that vitamins A[10], C[11] and riboflavin[12] have been found of value in the treatment of hypertension; that riboflavin deficiency will produce hypertension in rats. These are the vitamins in which the aircraft workers were most apt to be deficient. Unfortunately the report contained nothing about the blood pressures of these aircraft workers.

Believing that blood pressure readings per se give little information on trends and less on the actual condition of the circulation as a whole, Foulger has developed a "blood pressure score" and an "index of circulatory balance."[1] The "score" for each blood pressure reading is derived from the distance of the pulse pressure from an established mean of 44 and of the diastolic pressure from one of 79 in accordance with the formula:

lnS equals minus 0.00339 (X^2 plus Y^2) where S equals "score"

lnS, the logarithm of S to the base of 10.

x, the deviation of the diastolic pressure from the mean of 79.

y, the deviation of the pulse pressure from the mean of 44.

"Scores" between 0.11 and 0.20 are considered of doubtful normality and those below 0.1 definitely abnormal.

The "index of circulatory balance" is derived from the following ratio:

$$V \text{ equals } \frac{\text{Pulse Pressure}}{\text{Diastolic Pressure plus } \frac{1}{3} \text{ Pulse Pressure}}$$

An index—V—of less than 0.3 is considered to be abnormal.

That the results of such periodic examinations may be recorded and evaluated, charts have been prepared togther with a formula for the estimation of the maximum number of abnormals to be expected in any group. These may be found in Chapter XIII of Wampler's "The Principles and Practice of Industrial Medicine."

Frequent blood pressure readings scored in this manner will reveal:

1. Occupational groups showing too many or increasing numbers of abnormal scores which should not exceed 6 per cent.

2. Individuals showing too many abnormal scores.

3. Individuals beginning to show abnormal scores.

4. Individuals and groups that have fewer abnormal scores after the cause is removed or after treatment has been instituted.

While the occupational groups showing too many abnormal scores may generally be of most significance to the industrial physician, all are of importance to those who are interested in maintaining good health and attendance records for employees. Each group and each individual having too many abnormal scores or increasing numbers of them, should be carefully studied that the cause may be found and, if possible, removed.

Executives are not apt to be exposed to toxic chemicals yet they should be examined frequently as they may be exposed to one or more of the other factors listed. Even those most highly paid may suffer from improper nutrition because of dietary habits and fads or because of deficient diets prescribed by physicians and adhered to for a long time.

Normal "blood pressure scores" signify normal nutrition and health with no exposure to toxic chemicals, drugs, climatic conditions or overexertion. Especially when maximum efficiency is essential, the scoring of frequent blood pressure readings is indicated. Such "scores" are of great significance and are essential if occupational diseases are to be prevented and if ill-health and absenteeism are to be reduced to a minimum.

Bibliography

1. WAMPLER, F. J.: The Principles and Practice of Industrial Medicine, Baltimore, Williams & Wilkins, 1943.

2. DAVIS, N. S., III: Factors which may influence senescence, *Ann. Int. Med.*, 18:81-88, January, 1943.

3. NUZUM, F. R., and DALTON, J. W.: Paroxysmal and persistent hypertension in association with lesions of adrenal glands. *Am. Heart J.*, 16:643-662, December, 1938.

4. BRAUN-MENENDEZ, E.: The Mechanism of Renal Hypertension. *Proc. Inst. Med. Chicago*, 14:246-250, November, 1942.

5. WILLIAMS, R. J., et al.: Studies in Vitamin Content of Tissues. Austin, The University of Texas, 1942.

6. CALDER, R. M.: Nutritional deficiencies as cause of elevated blood pressure in rats (with especial reference to vitamin B complex). *J. Exper. Med.*, 76:1-14, July, 1942.

7. DAVIS, N. S., III: The Relation of urinary tract pathology to arterial hypertension. *Urolog. & Cut. Rev.*, 46:184-187, March, 1942.

8. Standardization of blood pressure readings. *Am. Heart J.*, 18:95, July, 1939, and *J.A.M.A.*, 113-294, July 27, 1939.

9. BORSOOK, H., ALPERT, E., and KEIGHLY, G. L.: Nutritional status of aircraft workers in Southern California. *Milbank Memorial Fund Quart.*, 21-115, April, 1943.

10. FLORES, A.: Large doses of vitamin A in therapy of syndrome of arterial hypertension. *Acta Med.*, Rio de Janeiro, 10:63-67, August, 1942.

11. DAVIS, N. S., III, and POSER, E. F.: Large doses of ascorbic acid in essential hypertension. *Clinical Med.*, 50:152-154, June, 1943.

12. DAVIS, N. S., III, Work to be reported.

Soap

—Versus Industrial Dermatoses—

GEORGIA LEFFINGWELL, Ph.D.,
and
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NEARLY a decade ago, Dr. W. R. Redden,[1] then National Medical Officer of the American Red Cross, advised: "Before you try fancy methods for the prevention of industrial or occupational dermatoses, try the simple methods of personal and environmental cleanliness, for there is no industrial disease that can be prevented and cured to a higher degree than by this simple method." The truth of that statement was never more apparent than it is today.

Since the beginning of the war, the number of persons employed in heavy industry has more than doubled. Absences due to occupational diseases and accidents used to be charged in dollars; now their effect is felt on every Allied battle-front. Industrial health has become a national obligation. Cleanliness is a patriotic duty. Soap has moved up to front rank among the weapons in the Arsenal of Democracy.

In its broader sense, industrial or occupational dermatosis refers to any irritation or inflammatory process of the skin developed by a worker in the course of his employment.[2] A more exact definition proposed as a result of the conjoint action of the Committee on Industrial Dermatoses of the A.M.A. and a group from the American Dermatological Association is as follows: "An occupational dermatosis is a pathological condition of the skin for which occupational exposure can be shown to be a major causal or a major contributory factor."[3] However, no definition, no matter how broad or how exact, can give a true picture of the extent and frequency of industrial skin disorders. It is not a pretty picture. It is estimated that occupational dermatoses constitute from 65 to 70% of all

occupational diseases.[2, 4] According to Dr. Louis Schwartz,[5] Medical Director, U. S. Public Health Service, there is more time lost from work because of occupational dermatitis than from any other occupational disease. He reports that the normal frequency of occupational skin diseases as compared to all other skin diseases is about two to one.

Since about 1% of all American workers develop an occupational dermatosis during the course of a year Orecklin,[2] in 1941, estimated that approximately 250,000 cases of occupational dermatosis occurred in the United States during the period of one year. This, he hastened to observe, would include only those workers who lost some time as a result of their skin affection, but would not include the milder cases that continued to work while they had some skin involvement as a result of their occupation.

Similar conditions prevail in Canada as well. Very recently, Kennedy[6] observed that, of the widespread industrial diseases which constantly beset the medical officer, industrial dermatitis is easily first, both in incidence and difficulty.

Back in 1938, Schwartz[4] reported that occupational dermatoses were increasing while other occupational diseases were decreasing. The trend continues, for last year he stated[5] that the speed-up of industry had increased the incidence of industrial dermatoses. This increase was especially marked among workers in the manufacture of tanks, planes, motors, guns, small arms, explosives, and ammunition. The definite increase in occupational dermatoses with war developments has been observed by other authorities. In a report on this problem, the Committee on Industrial Dermatoses[7] stressed that the establishment of proper preventive measures to avoid interference with production will be a very definite contribution to the war effort of the country.

In addition to the actual suffering, unemployment and time lost from work, one must take into consideration the dollars and cents costs of industrial dermatoses.

According to Osborne and Jorden,[8] it is generally admitted that such skin affections are responsible for from 40 to 60% of all claims for the payment of compensation in this country. Some time ago, at a meeting of the National Safety Congress, Schwartz[9] estimated that each case of industrial skin disease costs $200 on an average—half as compensation to the worker and a like amount for medical care. The price is undoubtedly higher today.

THE skin is exposed to hazards in practically all industries and hardly a trade or profession is free from the danger of some type of dermatitis. Practically any substance coming into contact with the skin may act as an irritant and produce a dermatitis. Hence, the number of substances that may act as skin irritants is manifold and numerous.[2] However, it is essential to recognize that industrial dermatitis may result from: (a) primary irritants such as alkalis, acids, caustics and the like which affect all those exposed to them with about equal intensity, and (b) individual sensitivity, because of which certain persons respond to ordinarily innocuous substances by a dermatitis. In the case of individual sensitivity, a certain amount of exposure is necessary before the substance handled becomes a primary irritant.[8]

Chemicals, including plants, are known to be the most frequent causes of occupational dermatoses. The 10 leading chemical causes of dermatitis, in decreasing order of importance, are: (a) petroleum oils and greases, (b) alkalis, including cement and concrete, (c) solvents, (d) chromic acid and salts, (e) metals, including metal plating, (f) dyes, (g) plants, (h) rubber and its compounds, i) paints and varnishes, and (j) synthetic resins. (4)

In commenting on the failure of safety engineers to take cognizance of the importance of preventing industrial dermatoses, Schwartz[5] pointed out that if a chemical irritates the skin, it may also affect the entire system. "Protecting the skin," he stressed, "may save the whole body."

In his many speeches and published articles, this leader in the field of industrial health has constantly stressed the importance of cleanliness as a means of preventing industrial dermatoses. Thus, the following statement, made in 1938[4] differs but little from a similar statement made in 1942:[5] "Lack of cleanliness is the most important predisposing cause of occupational dermatitis. Lack of cleanliness in the work environment is as important as lack of personal cleanliness. The daily cleaning of floors, walls and machines, combined with a daily change to clean work clothes and compulsory shower baths after work will do much to lessen the occurrence of occupational dermatosis."

Orecklin[2] likewise stresses that emphasis should be placed on personal cleanliness. In Australia, dermatologist Kesteven[10] feels that complicated industrial dermatitis results from the action of three factors: individual sensitivity, want of cleanliness and superimposed infection.

On the basis of his wide experience in a mass production industry, Mooney,[11] of the Ford Motor Company, has found that some of the most important factors in the control of industrial dermatitis are: (a) the encouragement of—and the necessity for—personal cleanliness, especially the skin, (b) as far as possible, the elimination of irritant materials from contact with the worker, (c) the use of properly cleaned, serviced and disinfected protective clothing, and (d) the application of protective hand creams.

This practical industrial health authority remarks that, since uncleanliness of the skin is the chief predisposing cause of industrial dermatitis, the employer should provide adequate facilities for the care of the workers' personal hygiene while on the job. This, Mooney feels, would include sanitary washrooms equipped with hot and cold running water, a non-irritating soap, towels and under certain conditions, bath showers.

The importance and plain common sense value of providing adequate washing and sanitation facilities has been recognized by all of the leading industrialists and their safety engineers. Suggestions and specifications for providing such facilities are readily available, not only from manufacturers of sanitation and washing equipment but also from published articles by authorities in the field.[12] Sheer,[13] in a comprehensive report on washroom and locker room requisites, remarks that helping the worker to keep clean inevitably results in better personnel relations and the strengthening of morale. As he pointed out in this paper, a well-lighted, well-ventilated, sanitary washroom offers a strong basis for the edict "Keep This Place Clean" and encourages cooperation on the part of the workers.

General environmental cleanliness in the plant is not only a deterrent to industrial dermatitis but to the incidence of accidents as well. Years ago, Millott,[14] speaking of the results obtained at the Union Switch and Signal Company, reported that good lighting obtained through cleanliness of windows and skylights to admit ample daylight, and cleanliness of floors and machinery to eliminate accidents due to slipping and other causes were important factors to a low accident rate.

The cleansing agents employed by workers are most important considerations in any sanitation program. Improper cleansers can actually be a factor in causing skin irritations. Strongly alkaline soaps, fats solvents such as gasoline and turpentine and similar substances are frequent causes of primary irritant dermatitis.[15] Without stopping to consider the irritant action of the cleanser, workers who become soiled with oils, greases, dyes and such are quite likely, if left to themselves, to use the most available and most rapid-acting solvent to clean the skin. Many cases of industrial dermatitis have been traced to the use of such cleansers.[5]

Washing carefully with a good grade of soap and water and thorough drying is considered an essential part of any preventive program against industrial dermatitis. Thus, Redden[1] reports that, "My own studies and the experience of numerous industries convinces me that in many cases the best preventive is keeping clean. Personal and environmental cleanliness has definitely cut down the number of cases of dermatitis (skin inflammation) with only simple and inexpensive measures based on soap and water."

The importance of soap and water cleanliness is perhaps nowhere so important as in industries where petroleum oils and greases, particularly "cutting" oils, are used. These substances, it will be remembered, are first on the list of chemical causes of occupational dermatoses. Cutting oils, used in the making and machining of metal parts, are, according to Schwartz,[16] the most frequent causes of dermatitis among factory workers engaged in the production of war materials.

Petroleum oils have the property of defatting the skin and all oils may plug up the pores of the skin and form comedomes. Infection of the hair follicles (folliculitis) is the most frequent type of dermatitis caused by cutting oils and cutting compounds. Infected follicles may in turn develop into boils and even carbuncles. In addition, the defatting action of the cutting oils on the skin may cause drying, cracking and fissuring. These open fissures being subject to secondary infection, the possibility of boils, lymphangitis and even septicemia are always present as a result of such effects.[17]

Then, too, these oils may contain such substances as sulfur; chlorine; rancid animal or vegetable oils; phenols, cresols, nitrobenzenes, and other inhibitors which may serve as primary irritants or skin sensitizers.

The factor of hypersensitivity is also a consideration when certain substances are present in the cutting or lubricating compounds.

There is full agreement among authorities that prevention of dermatitis from cutting oils consists mainly in cleanliness of person, of clothing, of the machines and of the oil.[1,2,16,17,18] For personal cleanliness, it is therefore essential that workers be provided with adequate washing facilities, soap, hot and cold running water, and shower baths and that workers should be compelled to use these facilities under supervision. It is recognized that frequent washing with a mild soap is one of the most effective ways to prevent oil acne, folliculitis and other forms of dermatitis and infection from the lubricating and cutting compounds. Hence, advises Schwartz,[16] toilet soap or liquid soap should be provided for the workers and these should be placed in convenient locations in the washrooms.

Clean protective clothes and the use of skin protective creams also play important roles in the prevention of these dermatoses. Nonetheless, as pointed out by Dr. Christopher Leggo,[18] then Industrial Hygiene Physician of the Missouri State Board of Health: "The greatest protection of all, however, is still personal cleanliness. No amount of experimentation with creams, protective clothing or other measures will justify a neglect of cleanliness."

It is also well to remember that comedomes, folliculitis and boils caused by cutting oils and related compounds can be successfully treated by cleanliness and antiseptics.[17]

Although industries using petroleum products as lubricating and cutting compounds were used as illustrative examples of how cleanliness can help to avert dermatitis, it should be emphasized that practically any other modern industry could have been used as a typical instance.

In addition to its important role as an aid in providing personal and environmental cleanliness and efficiency, soap works in other ways to help prevent industrial dermatoses. Thus soap is a very frequent constituent of many types of skin protectives now finding such extensive use in many vital industries. The varied types of skin protective creams now available to meet the specific needs of the several industries are the result of the cooperative efforts of the cosmetic industry, industrial physicians and public health workers.[5, 11, 19]

Such skin protective creams, to be applied to the exposed skin before going to work, serve not only as mechanical barriers to skin irritating substances, but are also intended to facilitate soap-and-water removal of accumulated dirt, grime, grease and the like at the end of the working day. Indeed, ready removal with simple soap and water is considered one of the prime requisites of such products.

Soap is a frequent, rather standard ingredient of skin protecting products. In such products it may serve as an emulsifying agent or be employed to facilitate spreading and final removal. Thus, soap is employed in a good proportion of the skin protective creams recently described by Tyler.[20] One typical soap-containing preparation, a so-called general type product for general use by workers in factories, machine shops, munition plants and such, consists of:

Stearic acid	5 parts
Lanolin	5 parts
Soap chips (88%)	8 parts
Magnesium stearate	10 parts
Glycerine	3 parts
Water	44 parts

Another protective hand cream described by Tyler, for use where a greasy product is not objectionable, is as follows:

Lanolin	20 parts
White chip soap	8 parts
Glycerine	2 parts
White petrolatum	3 parts
Zinc oxide	2 parts
Water	65 parts

A simple protective hand cream, in which soap is the basic ingredient, is given in one of the standard formularies.[21] Suggested for use prior to the handling of dry pigments, colored lacquers, enamels, paints and such, it is said that the mere use of water very easily removes the protective film and the adherent materials. The preparation is made from:

Gum arabic	20 parts
Chip white soap	80 parts
Water	sufficient to make a paste of the desired consistency.

The patent literature likewise presents its share of soap-utilizing skin protective creams. One such product, patented by Oliver,[22] consists of:

Hard soap	128 oz.
Sodium silicate	110 oz.
Glycerine	100 oz.
Potato starch	2 oz.
Distilled water	32 lb.
Cottonseed oil	3 oz.

Suggested for use by gasoline station attendants, auto mechanics, painters and printers—workers who come into contact with substances that cling and are difficult to remove, it is claimed that this material forms an elastic protective film on the skin that permits the passage of perspiration without loss of protective properties for at least eight hours.

When injuries occur, soap and water find a vital role in helping to prevent infection in open wounds or abraded surfaces. Without going into a discussion of the merits and demerits of soap as an antiseptic, it is well to remember that a scrub wth soap and water is an essential part of every surgical procedure, for both the surgeon and the patient. In industrial plants, not only is soap and water cleanliness the best preventive against infection from wounds, but also when such injuries occur, soap and water constitute a major part of treatment. The importance of immediately using soap and water has been stressed by many physicains.[23, 24, 25] Among the essential procedures in the treatment of recent wounds, according to Dr. J. M. Carlisle,[26] Medical Director of Merck & Co., are: cleaning of the skin thoroughly in a wide area about the wound; cleansing the wound thoroughly with soap and water.

A recent report published by Kerrigan[27] gives weight to the importance of soap and water in the treatment of industrial wounds. As a result of proper cleansing, using only soap and water, hospitalization was necessary in only 18 cases out of 21,862 industrial injuries treated over a five-year period. Despite uniform contamination and the difficulty of cleansing many wounds, in no instance in which primary soap and water cleansing was given was it necessary to hospitalize a worker because of infection. These results, Kerrigan feels, offer the severest test for the efficacy of this simple measure.

He also stated that the method is successful in the hands of nurses who care for many of the minor compound wounds.

From the foregoing, it is quite evident that plain soap-and-water cleanliness is not only a prime factor in the prevention of dermatitis resulting from occupations, but is a major aid when such conditions have occurred.

Soap as a constituent of skin protecting preparations also serves a useful prophylactic function to prevent workers' disability from skin affections.

Used as a primary measure when injuries occur, soap and water function to prevent infection and disability.

Bibliography

1. Redden, W. R.: *National Safety News*, February, 1934, p. 15.
2. Orecklin, L.: *Med. World*, 59:277, 1941.
3. Editorial: *J.A.M.A.*, 116:1394, 1941.
4. Schwartz, L.: *J.A.M.A.*, 111:1523, 1938.
5. Schwartz, L.: *New York State J. Med.*, 42:1525, 1942.
6. Kennedy, R. A.: *Canadian M. A. J.*, 48:421, 1943.
7. Committee on Industrial Dermatoses: *J.A.M.A.*, 119:810, 1942.
8. Osborn, E. D., and Jordon, J. W.: *J.A.M.A.*, 111:1533, 1938.
9. Schwartz, L.: (through) *Science News Letter*, November 6, 1937.
10. Kesteven, H. L.: *Med. J. Australia*, 1:406, 1942.
11. Mooney, T. F.: *Indust. Med.*, 11:191, (April) 1942.
12. Harrold, G. C.: *Hazards & Safety*, August, 1939, p. 24.
13. Scheer, C. F.: *National Safety News*, September, 1936, p. 50.
14. Mellott, M. K.: *National Safety News*, October, 1934, p. 55.
15. Reuter, M. J.: *Indust. Med.*, 10:147, (April) 1941.
16. Schwartz, L.: *Indust. Med.*, 11:457, (October) 1942.
17. Schwartz, L.: *Indust. Med.*, 11:228, (May) 1942.
18. Leggo, Christopher.: *Indust. Med.*, 12:102 (February) 1943.
19. Lesser, M. A.: *Drug & Cosmetic Ind.*, 46:284, 1940.
20. Tyler, C. A.: *Soap & Sanit. Chem.*, 18:19, (September) 1942.
21. Bennett, H. (Editor): "Chemical Formulary" Vol. IV, New York, Chem. Publ. Co., 1939, p. 49.
22. Oliver, O. F.: U. S. Pat. 2,120,569, June 14, 1938
23. Moorehead, J. J.: *Indust. Med.*, 12:140, (March) 1943.
24. Bush, L. F.: *Pennsylvania Med. J.*, January, 1941.
25. Douglass, T. C.: *Illinois Med. J.*, 80:15, 1941.
26. Carlisle, J. M.: *Indust. Med.*, 12:73, (February) 1943.
27. Kerrigan, R. L.: *Surg., Gynec. & Obst.*, 75:165, 1942.

Health and Safety

—Abstracts of Papers, the Rubber Section, Industrial Nursing Meetings, Seeing for Safety, and a Panel on Women in War Industry, at the Thirty-Second National Safety Congress and Exposition, Chicago, October 5-7, 1943—

IT WAS possible to cover a variety of subjects, as indicated in the sub-title above, with reference to the Thirty-Second National Safety Congress. As will be noted, these subjects have a particular relationship to both the health and the safety of industrial employees. The program of these Section meetings is on the next page.

Tuesday Afternoon, October 5

PROF. JOHN I. YELLOTT, in discussing the subject "Safety Training in Wartime," covered such sub-topics as the manpower situation; need for safety training; safety training possibilities; the probable results; and postwar prospects.

Comment was made that shortage of men and women available for industrial work was obvious; that by the end of the year some 11 million of the best qualified young men and women in the nation will be serving in the armed forces. Unemployment has now decreased until it is presently estimated that there are only one-half million men and women in the entire country who can be classed as unemployed. It is, therefore, evident that manpower must be used sparingly and intelligently, and conservation of services of men and women already employed must be emphasized—here accident prevention enters the field as one of the most important factors.

Although no worker wants to hurt himself, accidents constitute a very real menace to war production and most accidents occur because of some human failure, because of lack of knowledge or lack of care. Responsibility for accident prevention rests squarely upon management, and management exercises this responsibility through supervisors who must be thoroughly informed and safety-minded.

Training in accident prevention has now extended into 120 colleges of engineering throughout the nation, although formal training in safety engineering has been virtually absent from the curriculum of the American engineering colleges until this program was established. It is impressive to know that 40,000 men and women have been trained in accident prevention through a standard 96-hour course known as "Industrial Safety Engineering," which is part of the program of Engineering Defense Training, financial support being derived entirely from the U. S. Office of Education. It is obvious that this 96-hour course does not pretend to make safety engineers, but it does give basic training to those who have responsibility in this field in the various companies, and has aroused safety consciousness of a large number of responsible employees, providing specific technical information to companies who have never had any organized safety plans, with respect to setting up safety programs and making them work, and also bringing to management the necessity for such programs. A 20-hour package course has been devised and built around a series of sound-slide films produced by the National Safety Council; these courses are now available in many states, and concentrated efforts will soon project this type of instruction widely throughout war industries.

A most valuable aspect of the present safety training program lies in the fact of establishing safety consciousness with the probability that the worker is likely to retain this as a permanent part of his character, in peacetime as well as in wartime. Moreover, engineering colleges, having been made conscious of the accident prevention problem, are taking steps to assure adequate attention to safety engineering in their various curricula. This will also be reflected in making the designer safety conscious in the preparation of machines in postwar years and carrying to the rank and file, through such devices as the 20-hour course, personal reasons for establishing safe habits.

MISS RUTH STONE discussed "Highlights in the Placement of Women in Industry." Emphasis was placed upon the difference in physical build of the woman as compared with the man, and the necessity for differences

in the work. Instability of women was laid to the large pelvic base—therefore they slip and fall much easier.

The question of lifting of weights by women received consideration, and among the points made were the following: (1) period of work effort; (2) height, and stretch and pull; (3) weight not to exceed 35% of the body weight; (4) size and shape of material; (5) distance lifted; (6) change of level; (7) frequency; (8) method.

Several of the problems affecting the work of women were discussed, such as dermatitis, anemia, poisons, clothing, home life, and rest pauses. Oils, although hard on women's skin, do not produce a greater frequency of oil dermatitis in women than in men, for the reason that women are more cleanly and more used to taking care of the skin. Women have fewer red blood cells than men and, therefore, it is stated that they become more easily fatigued; this necessitates less time at work or more rest periods. A number of poisons are to be particularly avoided by women, such as lead, benzol, and carbon disulphide. With respect to clothing and similar subjects, caps are found to be the only solution to protecting the hair, nets not having been found as efficient or safe. MISS STONE was not in favor of uniforms for working women, since they do not allow individuality. High heels are definitely out, and safety shoes have come into the life of women employees. Home life presents great difficulty with respect to housework, shopping for food, and the care of children. In conclusion, rest pauses are a very necessary part of the routine of women war workers and they pay good dividends.

DR. C. O. SAPPINGTON presented the last number on the program, "Health Service in War Plants." This presentation was based upon recent experience in visiting a considerable variety of plants manufacturing war materiel in different portions of the country.

Physical examinations were done in all of the plants, most of them including an x-ray of the chest and a Kahn blood test. Placement was tried in most places, but in the main was not very scientific. Health maintenance (including periodic examinations—supervision and correction of physical defects—and a dispensary service) was well done in most organizations, but dependent, as was natural, upon available staff and facilities. There was a general tendency for accidental injuries and medical complaints to increase, the latter in greater proportion than the former. The nutrition program in general was fairly good in about half of the plants visited; one-fourth produced literature which was given not only to employees, but was sent to families. Some trouble was experienced with respect to facilities and also with respect to restricted lunch periods. Approximately two-thirds of the plants still allowed the vending of candy bars and soft drinks. Health education in the main was attempted, but the majority of the groups were not satisfied with the program, although they did the best they could in the time available and with the staff procurable. Absenteeism was definitely increased over previous figures, especially for personal reasons—it varied by sex and by age, and was commonly higher in women.

The impression gained by these visits and interviews was that the health service was well rendered considering the problems of understaffing and difficulty of providing proper facilities; there was definite need for the use of more women as counselors, safety engineers and physicians; and finally, there was no concrete evidence of the impairment of health of the working population at the present time.

Wednesday Morning, October 6

MR. A. K. GAETJENS presented the subject "How to Maintain a Lighting System at Top Efficiency."

It is most important to realize the principle that reducing fatigue will reduce accidents, and also the relationship between fatigue and poor lighting. It was stated that seven of eight impressions occur through vision; that four of five activities are motivated by sight; and that 75% of accident factors are affected by fatigue.

Reference was made to "Plant Efficiency," published by the War Production Board, which publication discusses lighting, and also a publication of the U. S. Department of Labor entitled "Industrial Hygiene and Plant Efficiency through Good Lighting."

Graphs were shown on lantern slides demonstrating that good lighting actually pays, and that, as foot-candles come down, production comes down proportionately and scrap increases. Some plants are getting only about 40% of lighting efficiency owing to lights which are out, poor voltage and dirt on fixtures. Rates of depreciation vary according to the factor involved; depreciation is 4% to 20% monthly, with an 8% average, due to dust and dirt alone. Cleaning should be done monthly, the 10% cost average being only a small proportion of the total operation. Methods of servicing lighting fixtures were demonstrated, among them safe ladders, telescopic platforms, bridges on monorails, cleaning trucks on the floor, and dropping the fixture from the ceiling by cable.

Various experiences in different plants were reported showing the decrease in accidents and spoilage through the use of good lighting.

Finally, it was emphasized that contrast by painting machines properly increased visibility.

MR. FABER BIRREN discussed "Color Contrast for Safety." This subject may be summarized by two statements: (1) the establishment of ideal seeing conditions; and (2) the psychological reasons, including gratification of human emotions.

Rubber Section—Tuesday, October 5

REPORT of Section Activities—General Chairman, JOHN L. GRIDER, Personnel Manager, Gould & Eberhardt, Newark, New Jersey.

"Safety Training in Wartime"—JOHN I. YELLOTT, Chairman, Safety Training Committee, Illinois Institute of Technology, Chicago.

"Highlights in the Placement of Women in Industry"—RUTH STONE, Chief, Women's Placement Section, Western Electric Company, Chicago.

"Health Service in War Plants"—C. O. SAPPINGTON, M.D., Dr. P.H., Industrial Health Consultant, Chicago.

General Discussion, led by R. W. FICKES, Safety Director, Goodyear Aircraft Corporation, Akron, Ohio.

"Women in Industry" (Motion Picture)—PAUL VAN CLEEF, Member, Van Cleef Bros., Chicago.

Seeing for Safety—Wednesday, October 6

PRESIDING: A. S. REGULA, Vice-President, General Time Instrument Corporation, New York City.

"How to Maintain A Lighting System at Top Efficiency"—A. K. GAETJENS, Engineering Department, General Electric Company, Cleveland.

"Color Contrast for Safety"—FABER BIRREN, Industrial Engineering Consultant, Faber Birren & Co., New York City.

"Visual Efficiency and Accidents"—HEDWIG S. KUHN, M.D., Chicago, Member, Industrial Advisory Committee, National Society for the Prevention of Blindness.

Industrial Nursing—Wednesday, October 6

PRESIDING: MRS. CHRISTIAN SEABROOK, R.N., Local Group Nursing Supervisor, Metropolitan Life Insurance Co., Chicago, and Chairman, Industrial Nursing Section, N.O.-P.H.N.

"A Practical Program of Employee Education in Nutrition and Health"—H. A. VONACHEN, M.D., General Medical Director, Caterpillar Tractor Company, Peoria, Illinois.

"Records—The Seeing Eye of Industrial Medicine" (Illustrated)—WM. J. FULTON, M.D., Medical Director, Eastern Aircraft Division, General Motors, Baltimore.

Women in War Industry—Thursday, October 7

PRESIDING: RICHARD W. MORSE, Director of Safety, Firestone Tire & Rubber Co., Akron, Ohio.

The PANEL discussed such questions as:

1. Are special safety training techniques needed for women?
2. Do we need special safety posters for women?
3. Must women be kept away from certain types of machines, such as circular saws, plate bending rolls, portable grinders, etc.?
4. Is it more difficult to get women to cooperate with safety departments?
5. Do women need elaborate rest rooms and locker rooms to maintain morale?

PANEL MEMBERS:

DOROTHY BARKER, Assistant Safety Engineer, Sacramento Air Service Command, Sacramento, California.

J. H. CHIVERS, M.D., Medical Director, Crane Co., Chicago.

ERIC GUILBERT, Safety Director, Republic Drill & Tool Co., Chicago.

J. H. MATHEWSON, Assistant Chief, Safety Branch, Air Service Command, Army Air Forces, McClellan Field, California.

D. A. MOORE, Safety Director, Western Electric Company, Hawthorne Works, Chicago.

MAFALDA M. PURPURA, Safety Supervisor of Women, Houston Shipbuilding Corporation, Houston, Texas.

Industrial Nursing—Thursday, October 7

PRESIDING: JOANNA M. JOHNSON, R.N., Supervisor, Industrial Nursing Division, Employers Mutuals, Wausau, Wisconsin.

"Nurse's Part in Physical Examination Program"—H.GLENN GARDINER, M.D., Medical Director, Foote Bros. Gear & Machine Corporation, Chicago.

"New Trends in the Treatment of Industrial Injuries"—HENRY H. RUBIN, M.D., Industrial Surgeon & Physician, Chicago.

"The Nurse's Part in a Program of Industrial Safety and Hygiene"—CLARK D. BRIDGES, Industrial Hygienist, National Safety Council, Chicago.

The causes of eye-strain were outlined as follows: inadequate, unsafe lighting; low visibility; glare; distractions by motion and other factors; severe adaptation of pupils from light to dark or vice versa; accommodation; prolonged convergence; and lack of visual relaxation.

The psychological and physiological manifestations of eye-strain include dilatation of the pupils; blinking; restriction of visual fields; specific fatigue of eye muscles; headache and irritation.

General fatigue of the individual may predispose him to accident proneness which may be accentuated by various poor lighting factors—uniformity is therefore desired. It was stated that 98% of accidents are as natural to men as their moods.

It should be realized, however, that too much color may cause accidents. A lot of research is needed in this field.

In conclusion, illumination of one eye increases the sensitivity of the other eye; strong light causes tension; turning off and on a light aggravates visual difficulties, and experiments show that individuals lean toward red lights and away from green ones. Sound, heat, taste, touch increase the sensitivity of sight. Persons in psychological experiments over-estimate time in a red light and underestimate time with a green light. Concentration of attention may be secured by color, but we must be cautious in the use of color; although it has values, there are limitations.

DR. HEDWIG KUHN, in concluding the program discussed "Visual Efficiency and Accidents."

There are two aspects of safety and eyes, namely safety to eyes and safety of eyes. Two factors hamper the collection of adequate data with respect to visual efficiency and accidents: (1) the present inadequate visual examination of industrial employees, and (2) the inadequate reporting and recording of accidents where eyes are involved.

"Strain" covers a multitude of sins and is not considered good language unless properly restricted and modified.

The essentials of good industrial eyesight were again emphasized: acuity, distant and near; working capacity, distant and near; depth perception; muscle balance; and color appreciation.

Graphs were shown on lantern slides showing the relationship of accidents to poor vision, one plant where there were 28% who had visual defects contributing 35% of the accidents recorded.

In conclusion, it was emphasized that diligent care of the eyes is needed for the job, for production, and for preservation of life and limb of industrial workers.

Wednesday Afternoon, October 6

DR. HAROLD A. VONACHEN presented the subject "A Practical Program of Employee Education in Nutrition and Health."

The war has focused attention on nutrition and health programs in industry, and the nurse has become a prominent factor in these programs, especially in small industries where it is important that nurses work under proper supervision.

The elements of the Caterpillar Tractor medical program were outlined: (1) care of occupational diseases and injuries; (2) physical examinations (annually on all, including executives); periodics on certain occupations, such as dry grinders, emery wheel grinders, and platers; (3) preventive medical activities, including checking and correcting minor defects, immunization, nutrition, and consulting services; (4) syphilis control; (5) tuberculosis; (6) rehabilitation program; (7) industrial hygiene activities; (8) correlation of industrial program with health and sanitation authorities; (9) employee welfare services; (10) administrative activities; (11) records; (12) procedures; and (13) divisional sections (first aid—x-ray—laboratory—physical examinations—physical therapy—office).

The syphilis control program established at Caterpillar was the first such industrial program in the United States, started in 1936. There have been 15,000 Kahn blood tests made and 500 persons are under treatment. Such persons are allowed to work providing, of course, that the disease is not in a communicable state or that there are not cardiovascular or neurological involvements. Individuals report monthly with a certificate of the family physician to the effect that treatment is being continued.

A tuberculosis control program is now being started, with the use of 4 x 5 films and active cooperation with tuberculosis associations.

With respect to the rehabilitation program, 500 physically handicapped employees are now at work, and there has been prepared a very excellent motion picture of these activities; these procedures are highly important with respect to the return of service men to work.

In the nutrition program, letters are sent to employees and also sent home with respect to the factors in this program. Cafeterias are maintained and victory lunches are sold for 30 cents, giving a good selection. Menu demonstrations are made, and posters are used to good effect. Reasons are given as to the necessity for salads, fruits, milk, and other protective foods. Six meetings of the housewives have been held, the attendance varying from two to six thousand persons, the largest groups in the United States. Westinghouse Electric & Manufacturing Co. has contributed a great deal of help on guides. Diet patterns have been established on a long-range basis. The only solution to the nutrition program is to be honest and keep at it. The speaker was against the wholesale distribution of vitamins and the exaggerated claims for them; proper diet is the answer—if there are real deficiencies in various individuals which can be definitely established, vitamins are of real scientific use.

In conclusion it was stated that the general health programs are permanent ones in industry. Nutrition programs will decidedly improve health, but should not be measured by materialistic conceptions entirely, because they are a definite contribution to humanitarian and spiritual values.

DR. WILLIAM J. FULTON concluded the program with his discussion "Records—The Seeing Eye of Industrial Medicine," illustrating his talk by excellent lantern slides.

Records in industry are of the greatest importance to tell where you have been and to indicate where you should go. We must individualize the records however, and recognize that we are dealing with personal units. Simplicity must be the guiding factor, and there should be a maximum of information available for a minimum amount of time and expense—readily available day by day.

We are interested in the geographical occurrence of various illnesses and accidents in different parts of the plant and also the anatomy of the individual, and charts are prepared for these uses, being so arranged that comparisons of the figures may be made.

It is highly important that observations and records be translated into language which will be readily understood by industrialists. Records can be the basis of evaluation of the effectiveness of the administrative procedures.

In a time study the percentage of time devoted to direct services has been evaluated in the experience of the company represented by DR. FULTON. This is as follows: the treatment of all injuries, 41%; surgical redressings 25%; initial medical complaints 26%; and checking of fitness for work 8%. A similar estimate of time allotted was made for indirect services, which was found to be 10.11 minutes per person.

It has been found that a nurse can handle about 41 cases per day, with an average of 11.5 minutes for each person. It can, therefore, be said that about 615 employees will produce enough work to keep one nurse busy in direct services exclusive of physical examinations.

Different charts and forms were exhiibted on lantern slides, making records graphic. It was believed that if one keeps good medical records the legal phase will take care of itself. The records are so arranged that at the end of each day the totals may be easily secured, and then the monthly recap can be easily made, from which the annual report can also be presented.

A code has been invented for a 10 to 15 year individual record both for injury and illness and the forms and their uses were explained.

Properly kept illness and injury records allow a great many measurements to be made by these means, and the segregation of illness- and accident-prone persons.

Certain factors are necessary for the use of base lines, such as the average number of employees; the man-hours

worked; production-hours; days on various operations; shifts; and costs of medical and compensation. Base lines for the plant as a whole may be projected, and also for individuals as to sickness and injury proneness and other indicators of employee performance. Such data are better than periodic examinations, in the opinion of the speaker.

General truths have been established in this experience as follows: 80 to 85% of the plant population produce approximately 30% of the medical complaints and injuries; 15 to 20% produce 60% of the medical complaints and injuries; the remaining 10% of the medical complaints and injuries are not seen by the department. It was emphasized in this connection that the human factor plays a major role in the production of accidents.

With respect to sick absenteeism, it was stated that 68% of this type of absenteeism is produced by 20% of the plant population. It is possible to conclude that at least 70% of the plant population is composed of average healthy and safe people, but the minority can cause great difficulty.

Analyses of well kept records, such as these, allow putting into practical use data shown by them, which can be supplemented by follow-up through personal contact and supervision. By the use of properly kept records of the combined problems of personnel, safety and medical activities, a test for day-by-day performance can be set up and evaluated and profit shown.

Through the use of a daily medical log, one can correlate all the factors involved in illness and injury at a glance, supplementing these by the anatomical distribution of the injury, and the location in the plant. Likewise frequency and severity rates can be used in this connection, both for a medical index and for an accident index.

In conclusion, it was stated that properly gathered and evaluated statistical data can constitute a weather bureau of national results and can be built into industry—industrial medicine has much to give and nothing to sell.

Thursday Morning, October 7

IN THE panel discussion on "Women in War Industry," the five questions previously cited in the program were submitted to each member of the panel, to which these answers were given. The questions will be repeated here for convenience, followed by the consensus of the panel.

1. *Are special safety training techniques needed for women?*

Women are unfamiliar with tools and techniques and should be trained properly, using caution in accepting women for certain jobs which call for changes and adjustment — moreover, temperament must be considered. In safety training, it seems wise to use techniques that appeal to women's vanity. The same training should be given to women as to men, but except for rare instances they should not be trained with men. Women cooperate well and can be told what to do with a feeling that they will carry out instructions—this probably is the reason some employers prefer working with women.

A discussion from the floor on weight lifting and age limits indicated that some organizations have definite regulations while others have not.

2. *Do we need special safety posters for women?*

Opinion was expressed that a few safety posters are needed for women, probably limited to dress. This was not agreed to by a woman member of the panel, who believed that such posters should not be limited to dress, because there are many other things concerned—the posters would have better appeal if women were pictured. It was conceded that it was grand to be glamorous, but that a shipyard is no place for this sort of thing.

3. *Must women be kept away from certain types of machines, such as circular saws, plate-bending rolls, portable grinders, etc?*

Management should avoid all possibility of accidents to women because facial scars and loss of members are a great deal more depressing to women than to men. Some members of the panel disagreed with this, especially with reference to depressing effect of injuries. It was stated that management should make attempts to adjust machines, especially for women, and they should be made more convenient, safer and more productive.

A discussion from the floor indicated that there was considerable necessity for training women for first aid and fire fighting, but that they should not be allowed to do heavy work on such a program.

4. *Is it more difficult to get women to cooperate with the safety department?*

It was the consensus that it was comparatively easy to get women to cooperate with the safety departments, and that women are more training-minded.

General discussion from the audience indicated that there was some disagreement with respect to the cooperation of women with safety training; that hair covering was general; that women should be put on safety committees, and that this was general; that induction talks and courses were also the usual procedures. It was agreed that caps are more efficient than hair nets, which should be discontinued. The necessity for sound statistical programs to support safety measures was stressed. The defects in safety shoes were discussed and measures indicated for their correction. Separate records were kept for women in about half of the plants represented.

5. *Do women need elaborate rest rooms and locker rooms to maintain morale?*

Experience in shipyard work indicated that this industry had to "grow up" with respect to the provision of rest rooms and locker rooms, but later good facilities really built up the morale of women workers. Comfortable, but not necessarily elaborate, facilities are to be desired. Other experiences showed the necessity for considerable supervision in the use of lockers and rest rooms. One organization provided the locker number printed on the reverse side of the badge so that, if the key was lost, an additional key could be supplied temporarily; moreover plans were in progress for "staggering" night and day locker assignments to prevent congestion.

The panel session ended with considerable discussion from the floor on the necessity for adequate supervision of the cleanliness program in lockers and rest rooms, especially in the training of women employees for cooperation in the cleanliness program.

Thursday Afternoon, October 7

DR. H. GLENN GARDINER presented the subject "Nurse's Part in Physical Examination Program."

There are two extremes in the use of nursing personnel in industrial medical departments—on the one hand, the nurse does no more than act as a clerk so far as the actual examination is concerned, or play the role of a chaperon; on the other hand, there is the extreme where the examinees are men and male nurses function as the examiners. Safety lies in staying in the middle of the road, so to speak, because it is economic wisdom to place responsibilities with responsible people.

The nurse has a great responsibility, particularly with respect to the impression which she creates with the examinee. This requires dignity, care and consideration at the time of the pre-employment examination.

Another important consideration in facilitating the maximum number of reasonably complete examinations in a minimum amount of time is the physical layout of the examination and dressing rooms. The examination room should have two dressing rooms at least, providing exit into a hall and an entrance into the examination room proper, there being provided separate facilities for men and women; moreover, these should be separated from the treatment rooms.

It is conceded that the nurse can be of great help in taking the history, making certain measurements such as temperature, pulse, weight, height, blood pressure, and the like; obtaining samples of blood and urine; taking x-ray films; and making vision tests and laboratory examinations of specimens.

In conclusion, it can be stated that the nurse can be of the greatest help in making certain technical and factual records, largely in a mechanical way, but should not be called upon to interpret these findings, which is the physician's prerogative.

DR. HENRY H. RUBIN presented the subject "New Trends in the Treatment of Industrial Injuries."

Included in this discussion were various subjects such as psychological aid, eyes, wounds, fractures, burns, and traumatic shock.

In general, new trends in the treatment of industrial injuries incline toward conservatism and a greater consideration of physiological principles, resulting in improved care. Primary concern, however, should be directed to prevention and control of injury and disease, emphasizing good working environment, good vision, proper nutrition, and the avoidance of fatigue, supplemented by physical examinations and medical supervision.

Psychological aid takes the form of gaining the confidence of the injured person through words of reassurance and sympathy and by composure of the professional staff, gentleness in handling, and keeping the patient in the first aid room for at least the time required to make an efficient examination and instill confidence, rather than rushing him to the doctor's office or the hospital.

Prompt care is of the essence in wounds because of the incubation period of bacteria during the first six hours after the wound occurs. Cleansing with mild soap and water is important, together with efficient debridement, sparing tendons, nerves and large blood vessels, and this should be done within the six-hour period. The wound may then be closed with primary suture and covered with copious fluffed gauze pressure bandages. The suturing of nerves and tendons should be done if necessary, and foreign bodies should be removed if they are accessible. Sulfanilamide if used should be powdered into the wound, using from three to 10 grams. Antitetanic serum should be administered in cases contaminated with street dust, and for massive wounds anti-gas gangrene serum should be used.

Minor burns are apt to heal in less than a week regardless of what preparation is applied. In a statistical study of minor industrial burns occurring in a group of approximately 250,000 employees the recommended treatment consisted of washing the area with white soap and water, leaving the blisters unbroken and undebrided, covering with fine mesh gauze impregnated with petrolatum or 5% boric acid ointment and applying a firm dressing, bulky enough to keep dirt away but not too large to keep the man off the job. In extensive burns, the burned area should be covered with a sterile towel or gauze moistened with soda solution, pain being controlled by hypodermic administration of ½ grain of morphine. Shock may have to be combatted and blood plasma and oxygen may be required—general anesthesia should be avoided. Further treatment consists of cleansing gently with plain white soap and sterile water as in wound treatment, the soap being removed by rinsing with sterile saline solution. Fine mesh gauze impregnated with sterile vaseline or 5% boric acid ointment followed by pressure dressings, should be applied to the burned area. Skin grafting may be required after the slough is removed, which usually occupies from 10 to 14 days. This is accomplished by small deep skin grafts which are covered by vaseline gauze or moist fluffed gauze and a bandage.

Treatment of shock depends upon the various types of injuries which it may follow. For shock following hemorrhage, blood transfusion should be given as quickly as possible and in adequate amounts. For shock following burns, the treatment is blood plasma given from 200 cc. to 500 cc. every hour and from 1000 cc. to 5000 cc. for 24 hours, depending upon the severity of the shock. Water should be withheld during this treatment. Plasma is also administered in shock following crushing injuries, and, in injury to soft parts, whole blood or plasma is administered to replace that which is lost. The practice of overheating patients in shock has been found to be harmful—the patient will do best if wrapped in a blanket and kept comfortably warm at room temperature.

MR. CLARK D. BRIDGES concluded the industrial nursing sessions with a discussion of "The Nurse's Part in a Program of Industrial Safety and Hygiene."

The nurse has come to be considered an essential part of the program of industrial safety and hygiene. Several studies were cited with references to costs and advantages, including the study by the National Association of Manufacturers, the U. S. Public Health Service study in 1936, and the American College of Surgeons study on small and large plants.

MR. BRIDGES agreed in general with the ideas on the nurse's part in the physical examination, as given by DRS. GARDINER and PRENDERGAST. (See page 795 herein for DR. GARDINER'S article; page 423 of INDUSTRIAL MEDICINE, July, 1943, for DR. PRENDERGAST'S.) The nurse should know the accident frequency and severity rates of her own plant and should also know how many first aid cases could occur in the plant population.

As a part of the nurse's responsibility, there are courses on first aid, safety and industrial hygiene which can help a great deal to increase her knowledge and efficiency.

The nurse should be a permanent part of the safety committee in every plant, and should furnish reports of accidents. It can easily be seen that if the nurse is a member of the safety committee she knows what the committee needs and how it can be profitably used, and this is the basis for making proper accident reports.

There is a great opportunity for the nurse's services in the placement of the handicapped; this will become increasingly important as service men return to industry.

Finally, it was concluded that hygiene and safety go hand in hand and that the nurse's part consists in making herself more efficient and irreplaceable—that, in doing so, the nurse must keep on "going to school."

Rhode Island Society

THE RHODE ISLAND SOCIETY OF INDUSTRIAL PHYSICIANS AND SURGEONS had their first meeting of the fall season in the Rhode Island Medical Library, October 19, 1943. At this meeting they were joined by the Rhode Island Industrial Nurses Club. This organization was recently formed and works in close harmony with the Rhode Island Society of Industrial Physicians and Surgeons. It is planned that at all future meetings the nurses will meet at 8:00 o'clock and conduct their business from 8:00 to 8:30. Then the physicians will meet at 8:30 or 8:45, and, after a short business meeting, both nurses and doctors will combine for a program of mutual interest.

The speaker of the evening at the October 19 session was MR. ROBERT GILLISPIE, of the Walsh-Kaiser Company, who spoke on the relationships of the physician in the plant and the safety engineer. MR. GILLISPIE gave a splendid exposition of what might be accomplished by closer cooperation between the physician and his knowledge of accident and accident prevention, when combined with the ability of the safety engineer to eliminate hazards in and around the plant and peculiar to the occupation. He urged the physicians to know thoroughly all the hazards associated with the particular plants they served, and know best how to treat them, and to assist the engineer wherever possible in eliminating serious accidents or continued occupational hazards. The meeting was extremely interesting and, following the talk, many physicians and nurses asked questions. Quite a lively discussion ensued when several instances were recounted by physicians and nurses.

Following MR. GILLISPIE the assembled doctors and nurses heard a talk by MRS. DORIS E. MCGOWAN, of the Division of Women and Children, State Department of Labor, on labor laws as they concerned women and children in industry. MRS. MCGOWAN expounded at length on the responsibility for determining the age of children in industry. She stressed the fact that a birth certificate alone was not satisfactory proof or not acceptable proof by the Department of Labor that the child was 16 years of age. The burden of proof rests upon the employer in every instance and they are urged to accept as employees only those persons who have been certified by the School Department. Several instances of fraudulent age have been uncovered by investigators, and the doctors and nurses were warned as to the best procedures to follow in considering children for employment. In these days of employment for everybody it is particularly necessary that physicians as well as employers be on guard when examining children for work that they are of the legal age and have the proper certificates issued by the school authorities. MRS. MCGOWAN'S talk likewise provoked a discussion and a very profitable one.

DR. DEERY, of the Department of Industrial Hygiene, showed a talking motion picture or a sound film entitled "Take Care of Yourself."

Following this the meeting adjourned after the distribution of pamphlets covering various phases of industrial health work and some pamphlets from the National Committee for the Conservation of Manpower in War Industries.

Medical Statistics for 1942

—Standard Oil Company (N. J.)—

M. G. ALLAN,
Statistician,
New York

THE average number of individuals under the supervision of the Medical Department during the year 1942 numbered 111,213—a decrease of 11,953 under the previous year's total of 123,166. The decrease is primarily due to the omission of statistics for the Nederlandsche Koloniale Petroleum Maatschappij operating in Sumatra previous to the Japanese invasion of that island, and also the omission of all reports from Europe.

TABLE I.
POPULATION—AVERAGE NUMBER FOR THE YEAR

Location	Employees	Employees Families	"Others"	Total
United States	34,244	—	—	34,244
Tropical Countries	26,668	40,122	10,179	76,969
TOTAL	69,912	40,122	10,179	111,213

Number of Disability Cases

AN individual who because of sickness or injury is confined to hospital or quarters for one or more calendar days, is reported as a lost-time disability case. Included in this figure are cases of sudden death. The number of disability cases reported for the entire population during 1942 was 46,513, a decrease of 3,808 cases when compared to the total of 50,321 reported for the preceding year.

The distribution by location and status is shown in Table 2.

TABLE 2.
NUMBER OF DISABILITY CASES

Location	Employees	Employees Families	"Others"	Total
United States	21,141	—	—	21,141
Tropical Countries	13,489	9,373	2,510	25,372
TOTAL	34,630	9,373	2,510	46,513

Hospital Admissions

THERE were 15,981 cases admitted to hospital for treatment—the equivalent of 34% of all the disability cases. For employees, 21% of the cases were hospitalized, for employees' families 68% and for "others" 88%. As shown in Table 3 there is wide variation in the percentage of employee cases hospitalized in the United States and tropical countries. With few exceptions the company supplies complete medical and hospital service in the South American companies and a large proportion of employee cases are as a rule treated in hospitals, regardless of the severity of the ailment. In the United States, employees provide for their own hospitalization for non-industrial disabilities and as a result only severe or operative cases are treated in hospitals; and no disability for employees' families is reported.

TABLE 3.
NUMBER OF EMPLOYEE HOSPITAL ADMISSIONS AND PERCENTAGE OF DISABILITY CASES HOSPITALIZED

Location	Number of Admissions	Percentage
United States	1,449	7
Tropical Countries	5,950	44
TOTAL	7,399	21

From *The Medical Bulletin*, Standard Oil Company (N. J.), October, 1943, by special permission.

The total number of hospital days was 165,840, of which 81,649 were for employees, 59,422 for employees' families and 24,769 for "others." This is a reduction from the 1941 experience which is proportionately greater than the reduction in population. The number of persons under the supervision of the Medical Department was reduced 10% and the number of hospital days was reduced 18% under the 1941 figures. Table 4 lists by companies the number of cases and days spent in company-owned hospitals.

TABLE 4.
CASES ADMITTED TO COMPANY HOSPITALS AND NUMBER OF HOSPITAL DAYS

Company	Cases	Days
Tropical Oil Company	1,949	17,296
International Petroleum Company	3,043	31,574
Andian National Corporation	630	8,275
Standard Oil Company of Venezuela	4,712	40,886
Lago Petroleum Corporation	658	7,326
Standard Oil Company S.A. Argentina	854	7,269
Lago Oil & Transport Company, Ltd.	2,565	29,065
TOTAL	14,411	141,691

Days of Disability

A TOTAL of 433,987 days of disability was reported of which 318,685 were for employees. Hereafter all discussions of rates will apply only to employees. The average days of disability per case (Table 5) for employees both in the United States and in the tropics is the lowest reported for the past eleven years. The days of disability per employee, however, is at a comparatively high level.

TABLE 5.
DISABILITY DAYS—EMPLOYEES ONLY

	Total Days	Days of Disability per Case	Days of Disability per Employee
United States	206,421	9.76	6.03
Tropical Countries	112,264	8.32	4.21
TOTAL	318,685	9.20	5.23

Non-Effective Rates

THE non-effective rate is a daily rate and shows the average number of employees disabled each day per 1,000 employees because of sickness or injury. The non-effective rates for the year 1942 by locations are included in Table 6. The non-effective rate was 14.3 for all employees, 16.5 in the United States and 11.5 in tropical countries. All of these rates are higher than in 1941 and higher than the previous 10-year average.

Frequency Rates

ALL frequency rates indicate the number of cases of disability per 1,000 employees annually. Frequency rates for 1941 are shown in Table 6. In this table "non-industrial disability" includes non-industrial illness and injury; and "industrial disability" those of industrial origin.

Industrial Disability

THE following table shows the trend of frequency rates for industrial disabilities during the past five years. There has been a steady but not unbroken decline in the rates in both the United States and tropical

TABLE 7.
INDUSTRIAL DISABILITY RATES BY YEARS

	United States	Tropical Countries	Total
1942	9.3	39.5	22.5
1941	9.3	40.5	26.0
1940	9.2	43.5	27.5
1939	11.4	47.6	30.9
1938	11.6	55.6	37.6

TABLE 6.
DISABILITY AND DEATH RATES FOR EMPLOYEES

	No. of Emps.	No. of Cases	Frequency Rates*			Non-Effec-Rates*	Death Rates*
			Total	Non-Industrial Disability	Industrial Disability		
UNITED STATES (Total)	34,244	21,141	617.4	608.1	9.3	16.5	4.00
REFINERIES:	20,339	11,791	579.7	573.6	6.1	16.8	4.77
Baltimore	1,003	455	453.6	440.7	12.9	26.3	1.99
Baton Rouge	5,876	2,976	504.9	499.1	5.8	13.9	5.28
Bayonne	2,622	890	339.4	334.5	4.9	20.8	9.15
Baytown	4,746	3,208	675.9	670.7	5.2	11.7	2.53
Bayway	5,123	3,589	700.5	693.9	6.6	19.8	5.47
Everett	485	302	622.7	620.6	2.1	24.8	—
Ingleside	484	380	785.1	776.8	8.3	20.0	—
PRODUCING AND PIPE LINE:	2,854	1,605	562.4	549.8	12.6	17.3	2.45
Carter Oil Company	1,910	1,085	568.1	559.2	8.9	17.4	3.14
Louisiana Pipe Line Dept.	615	402	653.7	629.3	24.4	18.7	1.63
Oklahoma Pipe Line Company	329	118	358.7	346.5	12.2	14.1	—
SALES:	3,241	3,118	962.0	936.4	25.6	18.7	3.39
Colonial Beacon	1,306	1,375	1,052.8	1,029.9	22.9	19.6	3.83
Louisiana	893	596	667.4	642.8	24.6	17.1	1.12
New Jersey	1,042	1,147	1,100.8	1,071.0	29.8	18.7	4.80
NATURAL GAS:	5,607	3,516	627.1	617.3	9.8	15.8	2.86
East Ohio Gas Company	2,009	1,800	896.0	887.5	8.5	14.7	1.50
Hope Group	2,081	971	466.6	456.0	10.6	17.8	4.33
Peoples Group	1,517	745	491.1	483.2	7.9	14.6	2.64
OTHER PLANTS:							
Gilbert & Barker Mfg. Co.	2,203	1,111	504.3	495.2	9.1	11.5	2.72
TROPICS (Total)	26,668	13,489	505.8	466.3	39.5	11.5	1.53
Andian National Corp.	861	306	355.4	311.3	44.1	10.3	2.32
Campana Refinery (Argentina)	960	519	540.6	538.5	2.1	13.6	6.25
International Petroleum Co.	5,341	1,110	207.8	169.8	38.0	6.2	2.62
Lago Oil & Transport Co.	5,481	3,244	591.9	579.5	12.4	10.8	.91
Lago Petroleum Corp.	2,824	889	314.8	275.5	39.3	8.8	1.06
Standard—Argentine	1,164	764	656.4	576.5	79.9	15.6	1.72
Standard—Cuba (Belot Ref.)	386	166	430.0	406.7	23.3	15.3	—
Standard—Venezuela	3,784	2,707	715.4	621.8	93.6	17.0	.79
Tropical Oil Company	3,069	1,382	450.3	422.0	28.3	10.5	—
West India Oil—Argentina	1,756	1,589	904.9	872.4	32.5	19.0	1.14
West India Oil—Chile	439	238	542.1	514.8	27.3	14.2	6.83
West India Oil—Panama	393	296	753.1	732.8	20.3	11.2	2.54
West India Oil—Porto Rico	210	279	1,328.6	1,276.2	52.4	18.1	—
GRAND TOTAL—ALL COMPANIES	60,912	34,630	568.5	546.0	22.5	14.3	2.92

*Per 1,000 per annum.

countries. The rate in the United States is slightly more than one half of that of 10 years ago and the rate in the tropical countries is reduced one-third in the same period.

Non-Industrial Disability

THE trend of frequency rates for non-industrial disability during the past eleven years is the reverse of that for industrial disability. There are many probable causes for the increased frequency of reported illness. Chief among these are: (1) Education of employees to more frequent use of the medical facilities provided. Because of this, practically all cases of illness are now reported where formerly many were overlooked. (2) Liberalization of sickness benefits has removed an economic bar to absenteeism with illness as a cause. Consequently, employees remain at home from work for minor illness which they formerly ignored.

TABLE 8.
NON-INDUSTRIAL DISABILITY

	United States	Tropical Countries	Total
1942	608.1	466.3	546.0
1941	635.5	423.3	522.6
1940	565.4	435.6	484.7
1939	489.8	373.5	418.2
1938	424.7	411.4	404.0
1937	458.0	313.5	404.7
1936	431.0	298.9	371.8
1935	365.2	269.2	318.8
1934	316.4	237.8	277.2
1933	317.5	234.8	279.3
1932	390.3	231.6	323.7

Table 9 shows the frequency rates for disease groups classified according to the "Standard Classified Nomenclature of Disease" and non-industrial injuries.

TABLE 9.
NON-INDUSTRIAL DISABILITY BY CAUSES

Disease Group	United States	Tropical Countries	Total
Diseases of the Respiratory System	255.2	119.3	195.7
Diseases of the Digestive System	133.2	114.8	125.2
General Diseases (Inc. Infectious)	94.8	90.7	93.0
Diseases of the Musculo-Skeletal System	32.4	16.1	25.3
Diseases of the Skin	18.3	30.8	23.8
Diseases of the Urogenital System	15.0	28.6	21.0
Diseases of the Eye and Ear	7.2	10.5	8.6
Diseases of the Nervous System	9.3	6.3	8.0
Diseases of the Cardiovascular System	9.2	3.3	6.6
Diseases of the Blood and Lymphatics	1.4	8.9	4.7
Diseases of the Endocrine System	.2	.1	.1
Non-Industrial Injuries	23.3	26.7	24.8
All Others	8.6	10.2	9.3

Diseases of the respiratory system are increasing in importance as leading factors in the higher frequency rates reported by both the United States and the tropics. The rate for 1942 is the highest since these yearly analyses have been published. The same is true of diseases of the digestive system but to a lesser degree. This is definitely tied up with the increasing tendency of employees to remain off duty because of minor disorders such as the common cold, gastritis, gastro-enteritis, etc. The significance of this can be appreciated when it is realized that 62% of the total sickness disability falls into these two classifications. Previous to 1940, infectious diseases (including malaria, influenza, etc.) were the most important causes

of disability in the tropics but since then have been in second or third place.

Common Cold

THIRTY-ONE per cent of all sickness cases are due to the common cold, the rate being 163.3. The following table shows the trend for the past five years:

TABLE 10.
COMMON COLD FREQUENCY RATES

	United States	Tropical Countries
1942	216.7	94.8
1941	211.8	90.6
1940	190.7	98.0
1939	154.7	67.9
1938	112.1	84.4

Again, this increase is more apparent than real and results from the same causes as discussed above for non-industrial disability.

The disease is much more prevalent in the United States than in the tropics and the increase in frequency is more accelerated there.

Influenza

THERE has been a marked decrease in the frequency rate for influenza during 1942. As seen in Table 11, influenza is periodic in severity and much more frequent in the United States than in the tropical countries.

TABLE 11.
INFLUENZA FREQUENCY RATES

	United States	Tropical Countries
1942	71.8	15.8
1941	124.8	28.1
1940	124.4	41.6
1939	86.9	24.0
1938	51.1	42.2

The high rates in the years 1940 and 1941 are evidence of the severe epidemic occurring during the latter months of 1940 and beginning of 1941.

Minor Gastro-Intestinal Diseases

AS STATED previously, minor stomach disorders are increasing yearly. In the tropics this situation is being studied to determine whether the diseases are caused by intestinal parasites. In spite of the increased prevalence of these parasites in tropical countries, minor gastro-intestinal conditions are more frequently ascribed as causes of disability in the United States than in the tropics.

TABLE 12.
FREQUENCY RATES, MINOR GASTRO-INTESTINAL DISEASES

	United States	Tropical Countries
1942	66.8	54.0
1941	58.9	41.9
1940	49.7	36.4
1939	49.3	32.4
1938	49.7	25.1

Malaria

The 1942 rates for malaria by locations are as follows:

TABLE 13.
MALARIA FREQUENCY RATES

United States	2.1
Tropical Countries	40.1
TOTAL	18.7

However, since these figures include population groups working in areas where malaria is not endemic, the rates cannot be considered indicative of the actual situation. In the United States for instance, only the Producing and Pipe Line operations, the Louisiana Sales Division and the Baton Rouge Refinery, Louisiana, report malaria cases. The rates range from 4.9 (Baton Rouge Refinery) to 19.5 (Louisiana Company Pipe Line Department).

In Table 14 the companies operating in the tropics where this disease is endemic, have been segregated and comparative rates for the past five years tabulated:

TABLE 14.
MALARIA FREQUENCY RATES BY COMPANIES AND BY YEARS

	1942	1941	1940	1939	1938
Tropical Oil Company	27.4	28.9	44.6	53.3	51.5
Standard Oil Co. of Venezuela	197.4	130.6	144.6	104.9	112.5
Andian National Corporation	34.8	27.8	30.8	118.3	117.2
Standard Oil Co. S. A. Argentina	58.4	50.6	45.8	57.4	27.6
Lago Petroleum Corporation	25.1	7.9	12.3	16.6	12.7

With the exception of the Tropical Oil Company, the rates are generally higher than in 1941, particularly so in Venezuela. There was a nationwide increase there in malaria during 1942 due in large part to the especially heavy rains experienced during the year. Another factor was the inability to procure adequate quantities of prophylactic drugs, thus limiting the preventive measures formerly strictly enforced.

Typhoid and Paratyphoid Fever

NINETEEN cases of typhoid fever and 15 cases of paratyphoid fever were recorded for the tropical countries. The frequency rate was 1.27. There are several factors responsible for this low rate, chief among them being the rigid sanitary measures enforced in all company concessions including monthly inspection trips, water analyses, etc.; the use of dried instead of fresh milk; the eradication of flies and fly breeding areas; and the gradual education of the national employees to the benefits derived from anti-typhoid inoculations.

Deaths

THE death rate for employees in the United States was 4.00 per thousand and in the tropics was 2.72, with a combined rate of 2.92 for all companies. This is the lowest rate recorded in the past 11 years.

Summary

THE population included in this report is 10% less than last year.

2. The decrease in hospital admissions was greater than the population decrease.

3. Days of disability per case were the lowest reported in 11 years; but days of disability per employee were at a high level.

4. Non-effective rates were higher than in 1941 and higher than the previous ten-year average.

5. Industrial disability frequency rates were at a low level.

6. Non-industrial disability frequency rates were high. Causes of the increase are more complete reporting of cases and liberalization of sickness benefit policies.

7. Frequency rates for common colds and minor gastro-intestinal diseases are increasing annually.

8. Frequency rates for malaria in tropical countries were higher due to excessive rains and limited anti-malarial drugs for prophylaxis.

9. Death rates were the lowest in 11 years.

Rehabilitation Program

GREATER Boston Branch of Industrial Nurses, cooperating with Massachusetts Division of Mental Hygiene, is presenting a "Rehabilitation Program" at Women's Educational and Industrial Union, 264 Bolyston Street, Boston, Monday Evenings, 7:30 to 9:30, November 15 to December 20, 1943, as follows:

November 15: "Mental Hygiene Understanding of the Industrial Worker," by DR. CLARENCE BONNER, Supt., Danvers State Hospital, or DR. GEORGE GARDNER, Director of George Baker Foundation.

November 22: "Personality Types and Reactions," by DR. GAYLORD COON, Boston Psychopathic Hospital.

November 29: "The Psychoneurotic in Industry," by DR. OSCAR RAEDER, Boston Psychopathic Hospital.

December 6: "The Problems of the Discharged Service Man," by DR. WILLIAM MALAMUD, Worcester State Hospital.

December 13: "Problems of Women in Industry," by DR. FLORENCE CLOTHIER, N.E. Home for Little Wanderers.

December 20: "Clinical Facilities for Aiding Industrial Workers," by DR. EDGAR YERBURY, Director, Massachusetts Division of Industrial Hygiene.

The classes are open to nurses in industry, full-time, and part-time, as well as to all other nurses who may be interested.

Co-Chairmen: CATHERINE R. DEMPSEY, R.N., President, American Association of Industrial Nurses, Simplex Wire & Cable Company, Cambridge, Massachusetts; and BLANCHE HARRIMAN, R.N., President, Greater Boston Branch, Lever Brothers, Cambridge.

Industrial Physical Examinations

THE purpose of industrial health programs is to promote and maintain the physical and mental welfare of all industrial employees. Physical examinations in industry are a means to this end.

Specifically, the objectives of industrial physical examinations are:

1. To facilitate placement and advancement of workers in accordance with individual physical and mental fitness.
2. To acquaint the examinee with his physical status and to assist him in improving and maintaining personal good health.
3. To safeguard the health and safety of others.
4. To discover and control the effects of unhealthful exposure.
5. To promote cooperative support and understanding of industrial health practices by employer and employee alike.

Unjust or questionable exclusion from work through improper application of the findings on physical examination in industry is against the public welfare and contrary to sound industrial health principles.

Scope

INDUSTRIAL physical examinations should include:

1. Past medical, family and occupational history.
2. Physical findings.
3. Personality appraisal.
4. Laboratory data.
5. Summary and recommendations.

General Procedures

SINCE placement of the worker in suitable employment is an important objective of industrial physical examinations, the examiner will obtain best results only when he is familiar with the industry he serves. Medical inspection of the plant or industrial premises at regular intervals is essential to an adequate physical examination program as well as in other aspects of industrial hygiene.

Physical examinations in industry are classified under two major headings:

1. Pre-placement examinations of applicants for employment.
2. Periodic re-examinations (regular or special).

In either case the examination should be complete.

The examination should be conducted by the physician himself, except such routine procedure as can safely be assigned to trained assistants. The examinee should remove all clothing in a private room. Special arrangements and a nurse in attendance are necessary in examining women employees.

Equipment

PHYSICAL examinations will be facilitated if the following equipment is available:

Examining table	Dynamometer
Stools, chairs and couch	Centrifuge
Mirror	Microscope
Screen	Stethoscope
Scale and measuring rod	Ophthalmoscope
Metal measuring tape	Blood vacuum tubes
Spotlight	Otoscope
Distant and near reading cards	Reflex hammer
Color sense testing cards	Rubber gloves and finger cots
Nose and throat mirror	Tuning forks
Transilluminator	Hemoglobin outfit
Blood pressure instrument	Urinalysis equipment
Luer syringes (2 cc. and 10 cc.)	Garment racks
Thermometer	

Records

CONTENT.—No single form has been devised to suit all requirements. The accompanying example is a composite of many used successfully in industry. Regardless of form, the records should contain:

1. Identification data: name, address, date and place of birth, race, sex, marital status, clock or social security number, and in certain circumstances photograph and finger prints. Some industrial physicians include name and address of next of kin.
2. Past medical and occupational history. Although details may be elicited by assistants, the importance of significant past health experience should be evaluated by the physician himself.
3. Physical findings:

(a) Pre-placement examination. The attached form is designed for pre-placement physical examination. Clarity and uniformity of expression are desirable. Variation in procedure will depend on specific industrial exposures and special job requirements. Examinations for transfer to other work or on return to work after prolonged absences are essentially pre-placement in character.

(b) Periodic examination. Re-examination should be conducted in the same detail as the original pre-placement examination survey. The recommended form can be readily modified to allow for re-examination and to meet special requirements. General principles are fully described in "Periodic Health Examination—A Manual for Physicians," Chicago, American Medical Association, 1940. Repetition of physical examinations must be determined by the physician in charge, based on his original examination and the nature of the industrial environment.

4. Personality data. Observation of temperament, personality and significant nervous or mental manifestations should be a correlated part of a complete examination. The brief outline suggested in the form has been used in practice with good results. Comparative schooling refers to the level of education attained in comparison with other children in the family.

5. Laboratory data. Urinalysis, hemoglobin determination, blood test for syphilis, chest x-ray examination, differential blood smear and blood sedimentation rate are employed in industry in about that descending order of frequency.

6. Summary and recommendations.

Coding.—Usage varies in coding or rating physical and mental status, but the common intent is to classify examinees in one of the following groups:

A. General approval for all work.

B. Approval for placement under medical supervision:

1. With limited physical exertion.
2. In non-hazardous work.
3. With orthopedic defect.
4. With defective vision.
5. With defective hearing.
6. With neuromental handicap.

C. General disapproval for any work.

From the public and industrial health standpoint the only absolute bar to immediate employment in ordinary occupations should be communicable disease, psychosis or serious disabling injury or disease. Other considerations related to employer liability, workmen's compensation, factory acts and health codes must be determined separately for each jurisdiction.

From *J.A.M.A.*, October 30, 1943, under the following caption: "The Council on Industrial Health has approved this article as the seventh of a series on Medical Service in Industry.—C. M. PETERSON, M.D., Secretary."

INDUSTRIAL PHYSICAL EXAMINATION

Employer City State
Name Address Clock No.
Age Race Marital Status Sex Social Sec. No.
Personal Physician Next of Kin

Personal and Family History:
Immunization Record:

Occupational History:

Physical Examination: Date Examiner
Height Weight Chest Measurement (Inspiration / Expiration)
Temperature Pulse (Resting / After Exercise) Girth
Blood Pressure Posture Musculature Nutrition
Skin Glands Hair Scalp
Vision: Distant (R. / L.) Corrected (R. / L.)
Vision: Near (R. / L.) Corrected (R. / L.)
Vision: Color Sense Depth Perception Eyegrounds
Hearing (R. / L.) Nose-Throat Tongue
Tonsils Neck
Teeth Gums
Lungs (R. / L.)
Heart
Abdomen Hernia
Genitalia Rectum Prostate
Spine
Joints Reflexes Hands Feet
Dysmenorrhea

Laboratory Data: Date Examiner
Urine: Appearance Specific Gravity Albumin Sugar Sediment
Blood: Hemoglobin Smear Sedimentation Rate
Wassermann Kahn Kline
X-Ray: Chest Other

Personality Data:
Appearance (Neat / Careless / Slovenly) Temperament (Aggressive / Quiet / Cooperative / Noncooperative) Intelligence (Quick / Average / Dull)
Comparative Schooling (Advanced / Average / Retarded) Summary (High / Medium / Low)

Summary and Recommendations: Code

Preservation and Use.—The examining physician may properly put information derived from records of industrial physical examination to the following uses:

1. All major findings should be discussed with the employee, with emphasis on the importance of obtaining immediate and adequate medical care.

2. A transcript may be supplied to the employee's personal physician or to other official community health agencies on consent of the employee.

3. The employer should be given information in accordance with the suggested code described in this report to facilitate placement or promotion. A special simple form can be devised for this purpose. The employer should especially be notified of any condition or disability thought to be caused by faulty work environment.

4. Governmental agencies such as courts, workmen's compensation commissions or health authorities should be supplied with information on legally enforceable official order.

In all other respects the confidential character of physical examination records should be rigidly observed and access should be granted only on request or consent of the examinee, preferably after preliminary discussion with the examining physician.

Suitable filing equipment and training of personnel should be maintained for the safe keeping of all medical records in the medical department.

Personnel

PHYSICAL examination is an important service of an industrial medical department having regular medical staff supervision. Where considerable numbers of examinations occur, nurses, technicians and clerks are helpful in securing and recording data in routine procedure. They require training which should be accepted as a special responsibility of the medical director.

In small plants, employers customarily make arrangements with individual examiners. A modification of this practice is to secure the services of an examiner from a panel of physicians approved by the county medical society for services of this kind.

TEN YEARS AGO

NATHAN S. DAVIS III, M.D., F.A.C.P., in "Cardiovascular Disease and Industry," in INDUSTRIAL MEDICINE for November, 1933: "Syphilitic Heart Disease: In syphilis, the heart becomes involved by the extension of a syphilitic aortitis over the aortic valves and the openings of the coronary arteries. It is unusual for syphilis to cause changes in the coronary arteries except in their most proximal portions; to cause myocardial changes other than those resulting from impaired coronary circulation or infrequently from gummata; to involve any valves except the aortic.

"While the infection reaches the aorta in the earlier stages of the disease, its progress is usually very slow. The symptoms of heart failure as a rule do not develop until about 20 years after the primary infection. With careful study it should be possible to make a diagnosis of syphilitic aortitis long before symptoms of heart failure arise but it is difficult to do this without the aid of the x-ray. Cardio-aortic syphilis is a slowly progressive disease in which specific therapy must be used with great care. It appears that it does not respond to specific therapy as well as do some of the other types higher in the negro race than in the white. Whereas one would expect to find positive Wassermann tests more regularly in active arterial syphilis than in other types of the disease, it is well known that this is often not the case. This disease is as a rule not diagnosed until far advanced; until an insufficiency of the aortic valves has developed or until symptoms of heart failure arise. If the diagnosis is made before the onset of heart failure, careful specific therapy may arrest the disease. However, after the onset of heart failure, less can be accomplished in this way. In addition the usual methods of treating the heart failure are not as efficacious as when rheumatism or arteriosclerosis are etiological factors. The result is that after the development of heart failure, the prognosis is distinctly bad, the life expectancy little more than two years. The highest mortality from cardio-aortic syphilis is between the forty-fifth and fifty-fifth years. The problem presented to the industrial physician by this type of heart disease differs from that presented by rheumatic heart disease. Neither of them seem to be on the increase. In fact, syphilitic cardiovascular disease is probably less common than it was 20 or 30 years ago. This decrease is the result especially of better treatment of the disease during its early stages. Further decrease will result from the more uniform use of prophylaxis against venereal disease and from further improvement in methods of treatment. The industrial physician should insist that employees found to have evidence of syphilis, must have adequate treatment if they are to hold their positions. The prevention and early adequate treatment of syphilis are the methods of prevention of this form of cardiovascular disease. When it comes to the employment or the continuing in employment of men with syphilitic heart and aortic disease, the attitude of the industrial physician should be quite different from that which he should have toward the man with rheumatic heart disease. Sudden death and the abrupt onset of heart failure occur frequently, due to sudden formation of or rupture of aneurysms, to interference with coronary circulation. After the onset of heart failure, it is unusual that recovery is sufficient to enable resumption of any but the lightest kind of work. Because sudden changes occur in those with cardio-aortic syphilis, they may cause accidents. To summarize: (1) Cardiovascular syphilis is a slowly progressive disease that is difficult to diagnose in its early stages. (2) After heart failure symptoms develop, the prognosis is bad. (3) The onset of heart failure is often abrupt. (4) Venereal prophylaxis and the adequate treatment of syphilis in its early stages should eventually cause this type of heart disease almost to disappear."

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MEMBERS of the AMERICAN ASSOCIATION OF INDUSTRIAL PHYSICIANS AND SURGEONS who are being discharged from the Armed Forces and who desire to relocate in industrial medical work are invited to communicate with DR. EDWARD C. HOLMBLAD, Managing Director of the Association. DR. HOLMBLAD is in close contact with the opportunities for such relocation. His address is 28 E. Jackson Blvd., Chicago 4.

"Oratory"

NO REAL American, conscious of the priceless heritage of more than 160 years of the American way of life, can fail to be disturbed by the differences between the brave words that come out of Washington regarding the sanctity of American institutions and the behind-the-scenes acts that belie them. Typical of the words, the thirtieth National Foreign Trade Convention last month was publicly informed that "One of the chief things for which we fight is the individual's right to create and enjoy through his own effort and ability, the material goods necessary to his welfare." Typical of the acts is the Wagner-Murray-Dingell bill now pending in Congress, drawn and presented, with administration favor, for the express purpose of restricting individual rights through the regimentation of individual effort and ability. The restrictive intendments may not be as obvious in this bill as in some others also pending; they are sugar-coated with a pretext of "social security"—as the political answer to a politically trumped-up need for medical care which, as certain administration organs insist, the public "cannot get." But the "social security" is a mere shibboleth; it speaks, as it were, once for itself, twice for more bureaucracy and regimentation, and many times for another administration Santa Claus.

We do not intend to editorialize regarding this bill; that is being well, and, we believe, effectively done in other medical magazines. We do, however, submit a realistic pre-view of certain eventualities of the enactment of the bill, in the colloquy on page 754. Our point here is that the preparation and introduction of this measure merely strengthen the relevancy to the situation of those who have been relying on the words from Washington, of certain remarks which the immortal bard put into the mouth of one of his, also too-credulous, characters: "And be these juggling fiends no more believed that palter with us in a double sense; that keep the word of promise to our ear, and break it to our hope."

"Smith Suddenly Remembers"

SPEAKING of pre-views, the second item under "Comment and Opinion," on page 20, contains another one. In time to come hostilities will suspend, and industry's normal relation to the means of life will supersede its now abnormal concentration on the instrumentalities of destruction. Freed from the pressure of war-time urgency, it will reorganize for peace. There will follow, of course, some dislocation, some reduction of the total number of the employed. Thousands of men will go back to their pre-war circumstances, thousands of women to their homes, thousands of both to a period of readjustment to changed working conditions. And there will be many Smiths who will "suddenly remember"—back strain or something else. Some far-sighted observers believe there will be *very* many, since, in certain respects—particularly in the employment of women—the need for haste has permitted conditions to develop which bear the seeds of a worse racket than even silicosis was responsible for. The measure for prevention is proper records. In the abstract of DR. FULTON'S article (page 744)) it is stated that "if one keeps good medical records the legal phase will take care of itself." This is an important truth, but very mildly conveyed. It would be more effective if put in reverse. Thus: "If one does not keep good medical records the legal phase will almost inevitably have to be very expensively taken care of."

References to Source

AS A PART of their legal literature, the lawyers have what they call a citator, a book in which the decisions of the courts of review are listed in terms of references to them in subsequent adjudications. The number of the references, as to the disposition of a point at issue, is persuasive of the status of the initial case as a leading case. In preparing briefs these references are often used for emphasis and support of a contention which is predicated on a leading case; they are not cumulated as though each were a new decision on the point that is being urged.

In medical literature, however, there is no comparable simplicity of orientation regarding those cases which, by virtue of the subsequent references to them, might be similarly considered as leading, or original. The indexes furnish a general guide, but the lack of methods for relating references to their primary source is apparent in the not uncommon adding-up, or cumulating, in articles and analyses, of instances which are repetitions rather than originals. This is particularly noticeable in connection with certain occupational exposures; for nowhere in the American literature is there an up-to-date listing of original refer-

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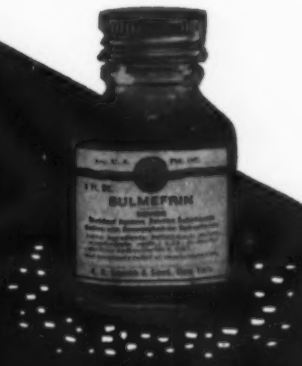

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ences to occupational diseases which can be regarded as anywhere near complete. The foreign literature includes a journal, *Sammlung von Vergiftungsfallen*, entirely devoted to original reports on case histories of occupational diseases, but it is not widely available in this country. Here, through the frequent, if inadvertent, inclusion of references to cases as if they were the cases themselves, we find the opinion rather widespread that there have been many more instances of certain kinds of occupational diseases than actually exist.

In the effort to furnish a beginning point, at least, for an assembly of primary sources as to cases of occupational poisoning from a number of common solvents, and to simplify the work of future writers on these solvents and their effects, we present a series of studies specially prepared for INDUSTRIAL MEDICINE by Safety Research Institute and covering the American literature of the last 10 years with reference to benzol, carbon disulphide, carbon tetrachloride, trichlorethylene, petroleum solvents, and fire extinguishers. The first study, relating to benzol, is published in this issue (see page 734). It is to be noted that this list does not purport to include the considerable number of cases which, while they may have been properly diagnosed and compensated, were not published. Nor does the list include the greater number of cases—many, to be sure, of moderate severity—which were not diagnosed as being related to occupational exposure. It is also to be noted that this list relates *only* to American experience. The subjects following benzol will be presented in successive issues.

Twenty Million Not Enough

DURING the past two or three years upwards of 20 million persons in the United States have had x-rays of their chests. Two-thirds of these have been young men of military age who were called up for physical examination before induction boards or Navy recruiting offices, National Guardsmen inducted into the regular Army, Coast Guardsmen, Marines, WACS, WAVES and SPARS. All are being given an x-ray examination of the chest to determine their fitness for the service they are about to enter.

Of all of the millions x-rayed, approximately one in a hundred was found to have abnormalities of the lungs or heart which needed medical attention. In the great majority of these cases the trouble was diagnosed as tuberculosis in an early or minimal stage which, with proper care and treatment, could be overcome with relative certainty and in a reasonably short time.

The remaining one-third of the millions x-rayed was made up of school and college students, inmates of institutions and hospitals, industrial workers and special groups. For example, in Minnesota the State Medical Society is engaged in a plan to x-ray the chest of every inhabitant of Meeker County who reacts to the tuberculin test. This kind of x-ray need not be expensive; for example, the report of the Committee on Tuberculosis of the State Medical Society discloses that the cost may be brought down to a very reasonable figure without any sacrifice of diagnostic accuracy. The plan is to extend the program to include the entire state.

Industry has a tremendous stake in the health of industrial workers. This is true not only in the present emergency but also under normal peace conditions. The holders of that stake are the workers, the employers, and the public (meaning the taxpayers). All three stand to lose more for every case of tuberculosis that is permitted through neglect to run its course than it would cost to prevent it. If the three stakeholders will now press the advantage given by the greatest mass chest x-ray survey ever made and extend it to include the millions of industrial workers and their families, the money investment would be repaid many times over within the next five years.

In what better way can an infinitesimal fraction of the nation's swollen income be used than in battling a preventable and therefore unnecessary disease which kills more people between 15 and 40 years of age than does any other disease. The nation could back the attack with greater force if it carried less of the burden imposed by tuberculosis.

Political Liniment

—Colloquy on the Lyrical Possibilities of a Certain Pending Bill—

YE'RE singin'," said Mr. Hennessey.

"That I am," said Mr. Dooley.

"An' what's 't ye're singin'?" said Mr. Hennessey.

"Ye wouldn't know," said Mr. Dooley, "so I'll tell ye. 'Tis th' new Gilbert an' Sullivan; th' up-to-date lyric av a ditty from th' 'Pirates av Finance'."

"Th' bankers er th' loan sharks?" said Mr. Hennessey.

"Nayther wan," said Mr. Dooley. "Th' politishuns. Have ye not read th' Wagner-Dingell bill?"

"I have not," said Mr. Hennessey.

"Ye should," said Mr. Dooley. "'Twill put th' gover'mint in midicine. Ye'll report yer bellyache t' Washington, W.N."

"W.N.?" said Mr. Hennessey.

"Wet Nurse," said Mr. Dooley. "Th' cradle t' th' grave. Th' pain killer, so ye won't feel 't whin they take yer eye teeth."

"Do tell," said Mr. Hennessey. "But th' Prisidint ain't no doctor."

"Ain't he?" said Mr. Dooley.

"Naw," said Mr. Hennessey. "He's got thim surgeon ginerals."

"Just wan," said Mr. Dooley. "I was singin' av 'im."

"Sing 't agin," said Mr. Hennessey.

"I will not," said Mr. Dooley. "Ye haven't th' ear fer music, so I'll tell it to ye: 'I am th' very model av th' modern surgeon gineral; th' boss av all yer ailments from th' mintal t' th' vineral. . . . '"

"That ain't th' worrd,' said Mr. Hennessey.

"What ain't?" said Mr. Dooley.

"That vineral," said Mr. Hennessey. "'Tain't th' way I heerd 't, th' time I wint. . . ."

"Niver mind," said Mr. Dooley. "Ye mean vinereal, wit'out th' details. But they're changin' 't. 'Twill have th' number."

"I know," said Mr. Hennessey. "606."

"'Twill also have th' grade," said Mr. Dooley. "No more av thim perscriptions. Here's how they'll work 't. Ye go t' th' doctor. . . ."

"Which doctor?" said Mr. Hennessey.

"Th' wan they tell ye," said Mr. Dooley. "Ye'll be instructed be th' local office av th' surgeon gineral. Ye'll go t' th' schoolhouse, like fer yer rations, an' th' card they give ye'll say t' see Dr. O'Toole on Monday an' Winsday from three t' foive, unliss 'tis rainin', er unliss 'tis th' holiday er th' day after, in which case ye'll see 'im th' Friday followin' th' fifteenth av th' nixt an' ensuin' calendar month if 't ain't Febooary or they ain't no ball game."

"He'll be t' th' ball game?" said Mr. Hennessey.

With due apologies to the memory of Finley Peter Dunne.

SINCE one of the most important measures for tuberculosis control is to find the disease in its early stages, when readily curable, it is easy to understand the increasing interest in this mobile type of x-ray unit for conducting chest surveys of large groups of individuals.

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"He will not," said Mr. Dooley, "but ye will. Supposin,' howiver, ye find 'im. At three be th' clock ye inter th' first door an' git in th' line fer th' second, an' at six minutes t' foive ye're 't th' head av th' line. At wan minute t' foive th' man befure ye comes out, an' ye start fer th' second door. But ye don't make 't. Th' lady tells ye 'tis after th' hours, an' ye should come back av a Chuesday wit' th' piece av paper she gives ye filled out. So ye fill 't out."

"There?" said Mr. Hennessey.

"Naw," said Mr. Dooley. "Ye take 't home, rememberin' how th' lady sez t' read th' same wit' care. Th' first thing ye read is th' pinalty."

"Th' what?" said Mr. Hennessey.

"Th' pinalty," said Mr. Dooley. "Th' part where ye'll go t' jail—foive years fer each time ye lie."

"Naw," said Mr. Hennessey.

"Yis," said Mr. Dooley. "Dependin' on how ye answer th' Quistion Tin."

"What's that?" said Mr. Hennessey.

"How will ye vote at th' nixt Prisidintial iliction?" said Mr. Dooley.

"Be that th' Quistion Tin?" said Mr. Hennessey.

"'Tis so," said Mr. Dooley.

"How'll they know which av 'em I vote fer?" said Mr. Hennessey. "'Tis none av their business."

"Ye'll discover th' same later on," said Mr. Dooley. "Meanwhile ye deliver th' paper, an' th' lady sez t' come back av a Chuesday an' she'll tell ye whin ye should come agin."

"Does she tell me?" said Mr. Hennessey.

"'T depinds," said Mr. Dooley. "How did ye answer th' Quistion Tin? Did ye say ye'd vote fer th' Dimicrats. Supposin' ye did. Thin they'll be sendin' fer ye: 'Come right in, Mr. Hinnissey. Stick out th' tongue, Mr. Hinnissey. Take off th' coat, Mr. Hinnissey. Where's 't hurt, Mr. Hinnissey? Ye're sufferin' from th' number twinty-sivin, grade K, Mr. Hinnissey. Ask th' druggist fer th' number two; 'twill dissolve in yer likker, an' ye'll be well in th' mornin'. Goodbye, Mr. Hinnissey. See ye at th' polls'."

"My, my," said Mr. Hennessey.

"But if ye told 'em ye'd vote Republican," said Mr. Dooley, "ye don't hear nawthin' till th' day befure iliction."

"Supposin' I git sick in th' meantime," said Mr. Hennessey.

"Ye shouldn't," said Mr. Dooley.

"But supposin', anyhow," said Mr. Hennessey.

"In th' evint av sickness," said Mr. Dooley, "ye call up th' doctor, an' th' lady sez t' ye 'Who's callin' 'im, he ain't in.' So ye tell 'er 'tis Hinnissey callin', an' she sez, sez she, 'Oh, oh, 'tis you.' 'Th' same,' ye reply. 'Hold th' line,' sez she. 'I'm holdin',' ye reply. An' ye keep on holdin' till they look ye up. Y'see, Hinnissey, whin ye give 'em th' paper, th' doctor read 't over, an' whin he come t' th' place fer th' diagnosis av yer sickness he wrote in t' 'See Quistion Tin.' So th' lady sez, 'Ye'll have t' suffer,' sez she. 'Th' trouble wit' ye,' sez she, 'ye're Republican, an' they ain't no cure. Ye should tell th' druggist ye want th' number twinty.' 'What's th' number twinty?' ye ask. 'Tis th' castor oil,' sez she, 'goodbye.'"

"But what if I don't get sick?" said Mr. Hennessey.

"Ye'll be th' same, all right, all right," said Mr. Dooley. "'Tis th' purpose t' make ye so. Th' day befure th' iliction th' doctor calls on ye at yer home. 'Stick out yer tongue,' sez he. 'Take off yer shirt,' sez he. 'H'm'm'm'!' sez he. 'Ye've th' number twilve, grade A,' sez he. 'An' th' number sivinteen, grade B,' sez he. 'What's thim?' sez ye. 'Th' measles an' th' smallpox,' sez he, 'an ye're quarantined from now till after they count th' votes,' sez he. An', Hinnissey, I'm tellin' ye, if they's any Republican ballots t' be counted, somebody's th' liar. They'll ketch 'im, howiver, befure th' inauguration."

"That's how they tell?" said Mr. Hennessey.

"That's how," said Mr. Dooley.

"'Tis a foine scheme," said Mr. Hennessey.

"They call 't th' social security," said Mr. Dooley. "In th' days av thim Roman imperors they called 't th' bread an' circuses. Thim things won't work no more; ye're tired av th' bread wit'out the' mate an' th' butter, an' they ain't nawthin' funny about thim clowns which is foightin' th' war wit' th' seat av their pants, so ye're sore about 't, an' they're givin' ye th' rub-off wit th' linimint."

"Free?" said Mr. Hennessey.

"Fer six per cint av yer wages," said Mr. Dooley. "'Tis mentioned in th' song. 'Th' linimint fer six per cint. . . .'"

"What song?" said Mr. Hennessey.

"Th' wan I was singin'," said Mr. Dooley.

"I c'n think av a ditty av me own," said Mr. Hennessey. "'Dingell bills, Dingell bills, Dingell all th' day; remove yer ills wit' gover'ment pills fer six per cint av pay. . . .'"

"Sounds like Christmas," said Mr. Dooley.

"'Tis th' only Santy Claus left," said Mr. Hennessey.

"They's another song," said Mr. Dooley. "'Dingell bills, Dingell bills; big chief sits in his teepee promisin' security; Dingell bills, Dingell bills; procreation t' cremation; Dingell bills.'"

"Sounds like Tammany," said Mr. Hennessey.

"Th' same fer th' Sinator from New York," said Mr. Dooley.

Family Physicians' Responsibility

DR. B. R. TUCKER, Chairman, Board of Trustees, Richmond Academy of Medicine, Richmond, Virginia, recently sent the following letter to the members of the Academy:

"We are writing to call your attention to a situation that is confronting many of our doctors at the present time. That matter is doubly serious since it is interfering with the production of war materials, and for that reason we are asking that you read this letter carefully.

"Many employees will stay away from their jobs for a day or more for very minor conditions. When they are ready to return to the job, they will go to the family physician, telling him they were sick and asking him to give them a note to that effect which they can present to the employer.

"The *Journal of the American Medical Association* for July 17, 1943, had a Current Comment discussion of this subject. The same idea has been brought out in other medical journals, especially INDUSTRIAL MEDICINE.

"The Committee on Industrial Medicine and Contract Practice of the Academy has petitioned the Trustees that the Academy membership be written regarding this matter. For the good of the government program and for our own professional reputation we are asking the membership, as a part of the war effort, to be very sure that persons have been ill enough to justify their failure to report to work before giving them a statement that they are away from work because of illness.

"If your *J.A.M.A.* is convenient we suggest you read, under Current Comment, 'The Doctor's Responsibility in Absenteeism,' in the July 17 issue."

We might add, see also INDUSTRIAL MEDICINE for August, 1943, page 30.

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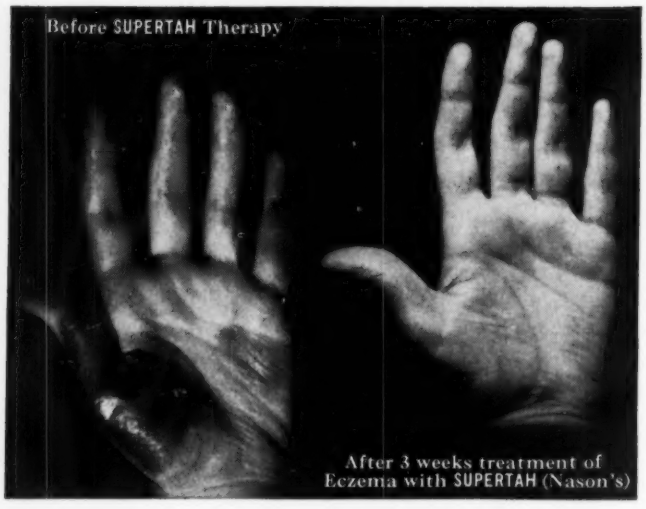

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*Swartz & Reilly, "Diagnosis and Treatment of Skin Diseases," p. 66.

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Problems of Night Work

—Influences on Health and Efficiency—

LUDWIG TELEKY
New York City

WITH night work a common practice in the war industries many questions have arisen as to its effects on the health and efficiency of workers. Unfortunately the factual data now available in this field are extremely meagre. However, because of the great practical importance of the subject it is the purpose here to review briefly all the data there are in order to provide a better understanding of the problems involved and the avenues of approach to their solution.

The question of night work, especially the night work of women, and the continuous night work of men (bakers) is an old one. In 1907 the International Association for Labor Protection brought about an international convention prohibiting nightwork for women. The International Labor Organization of the League of Nations renewed and modified this convention and established an international convention prohibiting the night work of bakers, the only trade in which continuous night work had been customary.

In the first World War, the English government organized a "Health of Munition Workers Committee," of 11 experts—economists, factory inspectors and physicians. In its final report[6] the Committee writes:

"207. Under existing conditions night work at any rate for men and women is inevitable. It is the means by which the machinery is employed for the greatest proportion of the 24 hours and, so long as the hours of work are not unduly long and due attention is paid to the environment of the worker, it is undoubtedly productive of increased output.

"208. The Committee is not satisfied that there is the same justification for the employment at night of girls and boys. The objections to night work for women are greatly accentuated in the case of growing girls, and the Committee is strongly of the opinion that all night work for girls under 18 should be terminated . . . For boys also, and especially those under 16, night work is highly undesirable . . ."

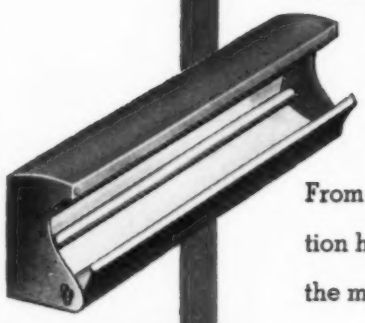
All these statements are true today. The question as to how to perform the necessary night work in a manner least detrimental to health which is at the same time efficient, still is of undiminished importance, and must be solved on the basis of the older experiences of the first World War as well as on the basis of new research work.

In the following the state of our present knowledge of this question is presented, taking up first some of the physiological considerations.

There is a rhythmic cycle in the organism of everything living: different in plants and animals, and also different in different species of animals.

In human beings we have a 24-hour cycle in many functions: in body-temperature, in pulse, blood pressure, respiration, in oxygen use and carbon dioxide excretion, in the blood picture, in the excretion of water and solid substances, in the functions of the suprarenal capsule and the hypophysis. Much valuable research work has been done to discover the conditions and the causes of these phenomena. Is the cycle created or influenced by daylight, by activity, by food? All of these conditions seem to have a certain influence on one or another of these cycles. But none fully explains the whole problem. For this reason some—and highly experienced—scholars have come to the conclusion that cosmic influences are predominant.

But it is not our intention to discuss these rather



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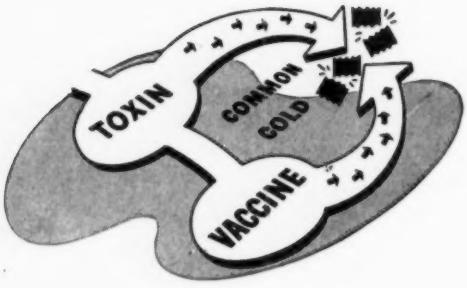

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theoretical questions. Our interest is primarily in the practical questions: What is the influence of night work as it is practiced in industry on the biological cycle—especially on the temperature curve and on health in general? And, how can the necessary night work best be performed?

There have ben many investigations for the above mentioned theoretical purposes. Some of them have a certain importance for our question, too. There are, however, some peculiarities. There are also some differences between experiments and practical living. In exchanging day living and night living under experimental conditions, we can make the inversion of life complete in activity and sleep as well as in meals, and so we may expect an exact inversion in the biological cycle.

In practical life, however, there are always other circumstances in addition to shifting the work from night to day. In general the time of the principal meal remains unchanged. Since meals and activity have an influence on the temperature of the body we can not expect an exact inversion of the temperature curve nor a very regular curve. In practical examinations it is also not possible to take the worker's temperature at short intervals in the way Benedict and Snell[2] did in their laboratory experiments (every four minutes). These relatively small numbers of temperature reading make it impossible to get the regular curves.

We know that in normal life the temperature rises during the day reaching its maximum between 5:00 and 8:00 P.M., falls during the night, with its minimum between 2:00 and 6:00 A.M. For the purposes of the present analysis of temperature findings in practical life we are going to speak of "inversion" if we see an increase of temperature during the night and a decrease during the day (without taking into account small oscillations). In many cases we have to be satisfied with only little data about temperature, so we can assume an inversion when it is stated that there is a lower temperature at the beginning of the night and the highest one in the morning.

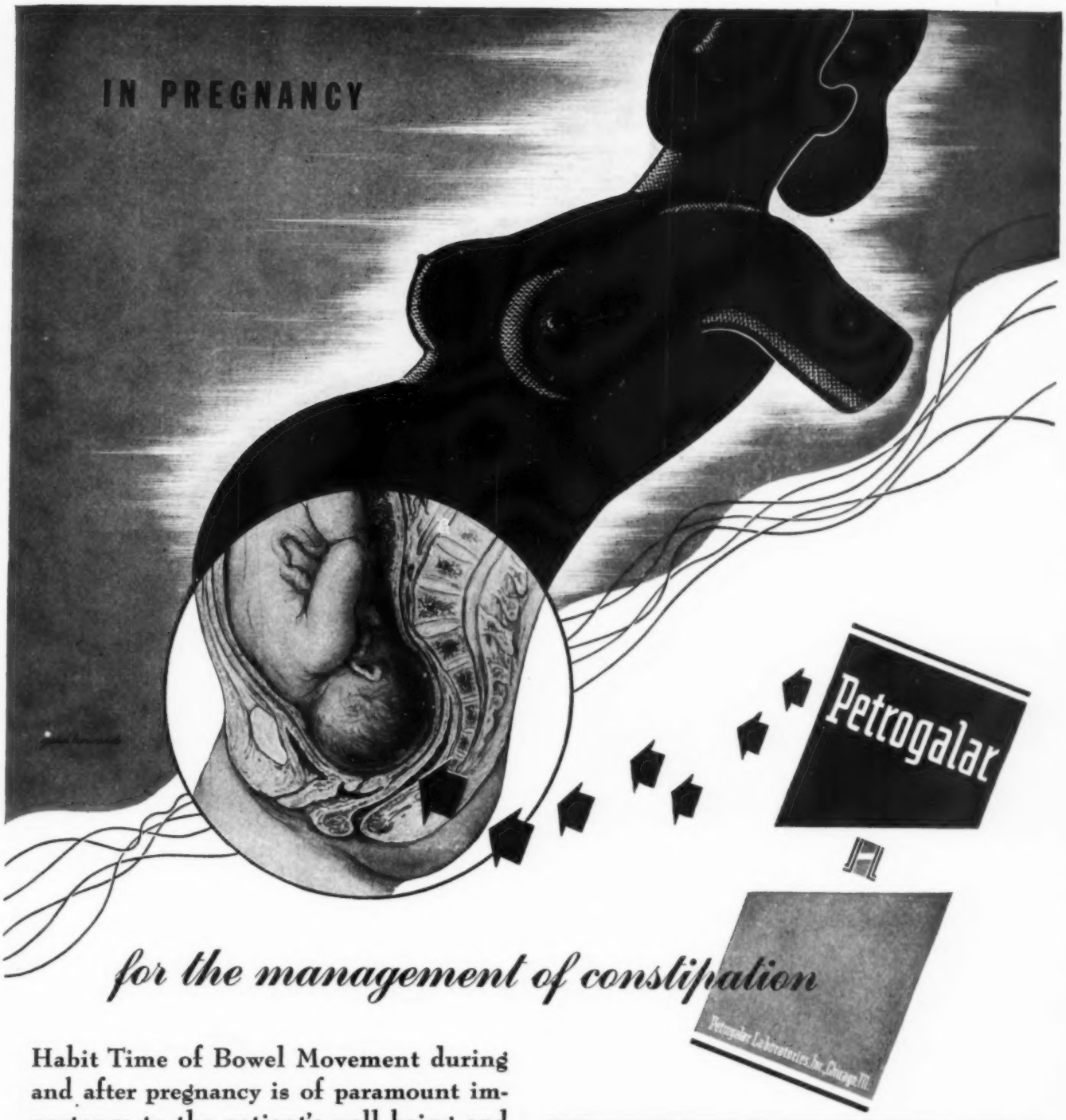
In the literature we find very few investigations concerning some of the cyclic functions of the body (Ishikawa[7]). Most investigations pay attention only to the temperature curves. We, therefore, will have to hold our analysis to available data on body temperature.

Taking first the purely experimental work done in this field, the self-experiments of U. Mosso in 1887 should be mentioned.[13] He found in the days preceding his experiments, two maxima in his temperature curve: the first at 9:00 A.M. (36.85°); the second at 4:00 to 5:00 P.M. (36.9°); and in between a small drop to 36.76°. In the course of his experiments—reading and writing during the night with as little movement as possible, and sleeping from 11:00 A.M. to 6:00 P.M.—he found a most astonishing rise of temperature (of 0.5°C) and greater oscillations. The result may be seen in the following table:

	Minimum		1st Maximum		2nd Maximum	
Normal day	36.3	6:00 A.M.	36.85	9:00 A.M.	36.9	4:00 to 5:00 P.M.
First exper. day	36.3	12:30-5:00 A.M.	37.1	9:00 A.M.	37.2	7:00 P.M.
Fourth and last day..	36.9	3:00 A.M.	37.8	9:00 A.M.	37.75	7:30 to 8:30 P.M.

We cannot regard this as the true inversion which the author believes it to be. As he himself writes: "To be exact, I must say that I succeeded only in increasing the temperature of my body from 5:00 to 9:00 A.M., and in bringing the highest elevation to the morning." These are, in reality, merely irregularities.

F. C. Benedict and J. F. Snell[2] (1901) examined every four minutes the temperature of a man, 20 years



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of age, who had to serve as a night observer in metabolism experiments with a respiration calorimeter. He performed this work mostly sitting in a revolving chair. After 10 succeeding days of this experiment (and later in a repetition of the experiment for 12 days) they observed "no visible tendency to an inversion of the temperature curve," but "the normal curve has undergone profound alterations as a result of the change in routine of daily life."

Benedict[1] also studied a factory night watchman, 44 years of age, who held his position uninterruptedly for five years. For the purposes of examinations Benedict put him in the laboratory twice, for a day each time. We see here a minimum temperature during the night followed by a morning rise. But then we see a very outstanding fall during his day sleep to a point a little below the dip in the night. Certainly we have no inversion here. But "the course of the curve is markedly different from any with which we are familiar." I think that transplanting the man from his usual night work (including a 12-mile walk through the factory) to the laboratory, where he moved very little, may have altered the curve from what it was when he was actually working as night watchman.

Summarizing these investigations on men sitting in laboratories with very little physical activity, many irregularities have been found as well as changes in the temperature curve. But there was no case of true inversion even after experimenting 10 or 12 days, or when night work with physical activity had preceded.

We will refer later to another experiment carried out under natural circumstances in the polar night. But first, let us mention some other experiments in which attempts were made to change the temperature cycle by means other than interchanging day and night.

H. Voelker[17] carried out experiments, one of which involved putting back by eight hours each item in his daily schedule. He found that the deviation in temperature was not as great as would be anticipated to correspond with the change in the time-schedule. The minimum temperatures were especially affected.

Another study was published by H. Kleitman.[10] He and his collaborators tried to live on a 48-hour day (being awake continuously for 39 to 40 hours); on a 12-hour day and on a 21- and a 28-hour day. All of this throws little light on the problems of the night shift, but it is important because it directs attention to great individual differences. For example, "One man (Titelbaum) could acquire a 21- or 28-hour cycle without difficulty." "It took one man a week to make the change," while Kleitman "continued with the 24-hour cycle" in all the experiments. One man, who once could not swing into a new cycle, could do so very well in other external circumstances.

In another investigation Kleitman[9] showed that diurnal variations exist in speed and accuracy of performance as well as in reaction time. The best performance was in the afternoon. The poorest was in the early morning and late at night. Kleitman, Titelbaum, and Feiveson,[11] showed that there is a relationship between these variations and the diurnal body temperature curve. A change in the temperature adversely affected the reaction time.

Most important for our problem are the investigations made in practical life, even though not all of them concern people doing night work in modern industry.

There is a report by O. Polimanti[14] about a pharmacist, doing night service for years. But he did not really work during the whole night; he slept for one

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**Barborka, C. J.; Foltz, E. E., and Ivy, A. C.: Relationship Between Vitamin B Complex Intake and Work Output in Trained Subjects, J. A. M. A. 122: 717-720, July 10, 1943.

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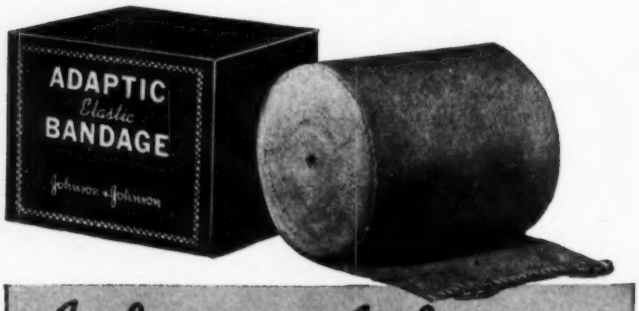

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and a half to two hours in the night, and then he slept in the afternoon from 2:00 to 5:30. His curve showed irregularities; the highest temperature developing in general at 1:00 P.M. and the lowest at 1:00 A.M. There was no inversion here.

Jaeger[8] studied military bakers working from 3:00 A.M. to 4:00 P.M., with a rest of a quarter of an hour; then from 7:00 to 8:00 P.M. doing light work, bed rest from 8:00 P.M. to 3:00 A.M. These terrible working hours, not unusual for bakers in those times, cannot be called an inversion of normal life. The temperature curves also showed no inversion but many irregularities: the minima at 10:00 P.M. or midnight; the maxima with great irregularity between 8:00 A.M. and 4:00 P.M.

The first research work in this field seems to have been done by Debszinski in 1875.[4] He found, examining bakers, that work carried on through the night caused a reversal in the temperature fluctuations, with maxima of 37.8° in the morning, and minima of 35.8° in the evening. The work of night watchman had a similar but less noticeable effect upon temperature (37.7° in the morning, 37.5° in the evening). Büchser (quoted in Ref. 3), an engineer accustomed to night-work, found that his temperature varied from 37° to 37.5° in the morning (average 37.25°) and from 36.6° to 37° in the evening (average 36.8°).

Linhard[12] conducted experiments in the polar night where all work is done inside and with artificial light. He changed the "sleeping time" on one day by four hours; on the next by eight hours; thus exchanging "day" and "night." More than half of the 26 members of the party felt perfectly normal as soon as the transition had been accomplished. By the end of five or six days only a few were little indisposed to work, not sleeping so well at "night" and becoming sleepy at odd times of the "day." All the temperature curves taken pointed to a reversal of rhythm; a delay of adaptation being found in the cases of those few who experienced some difficulty in promptly adapting themselves to the changed condition. The most difficult to accomplish was to change the time of defecation.

A valuable study was performed by N. Toulouse and H. Pieron.[15] They examined six night watchmen in a large hospital, who had worked for many years at this job, and found an inverse curve with a fall of temperature between noon and midnight. Five other persons showed no inversion, but they were ill people who worked only occasionally as night watchmen. In two of these men, it could be observed that the normal curve was only slowly being displaced. Reversion of the temperature curve in single individuals accustomed to night work seemed nearly as difficult to obtain as the inversion.

T. Ishikawa[7] investigated six girls between 13 and 19 years of age working in the textile industry from 6:00 A.M. to 5:00 P.M. as well as in night shifts from 6:00 P.M. to 5:00 A.M. He publishes only the average of the temperatures of those six girls, and comes to the conclusion that "when the night is occupied in work and the day in sleeping, the hourly course of body temperature, pulse and blood pressure are an inversion of the normal daily routine." Neither in the figures nor in the tables, however, does one actually find an inversion in temperature or other functions, but rather only marked irregularities, with a rise of temperature after the midnight meal and a quick return to the level before the meal.

There is another publication, based on a study of real night workers, the investigation by H. Goldstein.[5] "The influence of night work on the temperature curve of men" does not appear to have been re-

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ported in the American literature. For this reason, the findings will be presented in some detail.

The author studied the workers of a great bakery in Vienna, taking their temperatures by mouth himself. Most of the workers were employed in three shifts. The principal meal was always taken in the middle of the day (2:00 to 3:00 P.M.).

The first group consisted of three men who had been working for a long time (months or years) in their present jobs and who had always done night work. They were not, however, employed in the bakeshop. Two men, a mixer and a forwarding clerk, each had in every temperature curve available for us the highest temperature at 7:00 A.M. This represents an inversion. The third man, a night watchman, had his highest temperature at 2:00 A.M. on four available nights. Here, too, we can see a strong tendency to inversion.

The other groups consisted of bakers working in the bakeshop at temperatures of from 26°-34° C. They had formerly done continuous night work, but for many months, or years, had alternately done night work for one week and day work for two weeks in morning and afternoon shifts.

The first of these groups was first examined in the night shift, which followed two weeks of day work; then in the afternoon shift (following the night shift) after two days of rest (Table I).

In order to complete our report, one should mention a doorkeeper, sitting in his box and watching only three to four nights weekly, who showed a falling temperature between 10:00 P.M. and 2:00 A.M. (0.43°-1.35°). After 2:00 A.M. he showed a decrease in the first night, and a slight increase (0.1°-0.15°) of temperature in the two other nights.

If we study the 13 bakers in Tables I and II (omitting No. 11) we find the inversion complete and prompt in the first night shift, with the highest temperature at 7:00 A.M. in nine cases (Nos. 1, 2, 3, 6, 8, 9, 12, 13, 14). Then there are (except Nos. 12 and 14) irregularities in one or two of the following nights. After that, a complete inversion is again observed, beginning with the third, fourth, or fifth night. In only one of these cases[8] do we see greater irregularities; in the fifth night the same highest temperature occurs at 2:00 A.M. and 7:00 A.M. In one case (7) the highest temperature developed in the first night at 2:00 A.M., but then beginning with the third night, at 7:00 A.M.

In three cases (4, 5, 10), the highest temperature is to be found at 2:00 A.M. In two cases this began to evidence itself on the first night, then there follow irregularities, as mentioned above. In the third case (10), the maximum temperature at 2:00 A.M. began to manifest itself in the second night.

The development of the reversion is often more prompt than that of the inversion.

Summarizing, we can say: in nine of the 13 bakers the inversion is completed within the first five days, with the highest temperature at 7:00 A.M.; three cases show the highest temperature at 2:00 A.M. We can speak definitely of a complete inversion within the first week in the first nine cases; and also with a considerable probability in the last three cases. In a single case only (8), no inversion seems to have taken place. The reversion follows a pattern similar to that of the inversion, but is sometimes more rapid and shows fewer irregularities.

Since bakers work hard in a warm room and their ways of life, outside of working hours, differ considerably from one another, further investigations were made by the author on nurses. The night work of the nurses did not involve such hard physical work; their habits of life were very regular, and the same for all, since they were living in the nurses' house of a Red-Cross Hospital. The day service was from 6:00

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* Karnaky, K. J.: West. Jnl. Surg. Obstet. and Gyn., Vol. 51, p. 150, April 1943; condensed in Cur. Med. Dig., July 1943, p. 43.

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TABLE I.

Night Shift: 10:00 P.M. to 6:00 A.M. following two weeks of day work. Measurements taken at 10:00 P.M., 2:00 A.M., 7:00 A.M. In some days once during the day.
Day Shift: 2:00 P.M. to 10:00 P.M. following the night shift after two days of rest. Measurements taken at 2:00 P.M., 6:00 P.M., 10:00 P.M. In some days once during the morning.

	Night Shift					Day Shift					Highest Temperature at	Remarks	Summary
	1	2	3	4	5	1	2	3	4	5			
Case 1	√	√	√	√	√	√	√	√	√	√	7:00 A.M. 2:00 A.M. 6:00 P.M.	Only 0.0 5° higher than 7:00 A.M.	Prompt inversion with irregularities. Prompt reversion.
Case 2	√	√	√	√	√	√	√	√	√		7:00 A.M. 10:00 P.M. 6:00 P.M. 10:00 P.M.		Prompt inversion with irregularities. Prompt reversion.
Case 3	√	√	√	√	√	√	√	√	√		7:00 A.M. 10:00 P.M. Daytime 6:00 P.M. 2:00 P.M.		Prompt inversion with irregularities. Reversion with irregularities.
Case 4	√	√	√	√	√	√	√	√	√		2:00 A.M. 10:00 P.M. 6:00 P.M. 2:00 P.M.		Very strong tendency to inversion and reversion with irregularities.
Case 5	√	√	√	√				ill			2:00 A.M. 2:00 A.M.	The same temperature 10:00 P.M.	Strong tendency to inversion.
Case 6	√	√	√	√	√	√	√	√	√	√	7:00 A.M. 2:00 A.M. Daytime 2:00 P.M. 2:00 P.M.	The same temperature 10:00 P.M.	Prompt inversion with irregularities. Prompt reversion but not complete, irregularities .
Case 7	√	√	√	√	√	√	√	√	√		2:00 A.M. 2:00 A.M. 7:00 A.M. 6:00 P.M. 6:00 P.M.	The same temperature 7:00 A.M. The same temperature 2:00 P.M.	Inversion from the 3rd day. Reversion from the 2nd day.
Case 8	√	√	√	√	√	√	√	√	√		7:00 A.M. 2:00 A.M. Daytime 2:00 A.M. 2:00 P.M. 10:00 P.M. 6:00 P.M.	and daytime. +0.05° higher than 7:00 A.M. the same temperature 7:00 A.M.	Irregularities with tendency to inversion. Quick reversion.
Case 9	√	√	√	√	√	√	√	√			7:00 A.M. 10:00 P.M. 2:00 A.M. 6:00 P.M.		Inversion with irregularities. Prompt reversion.
Case 10	√	√	√	√	√	√	√	√			10:00 P.M. 2:00 A.M. 2:00 P.M. 6:00 P.M. 10:00 P.M.		Strong tendency to inversion and reversion beginning with the second shift.
Case 11												Too small number of observations.	

A.M. to 8:00 P.M., with a rest from 3:00 P.M. to 4:30 P.M. The main meal was at 12:30 P.M. The other meals were at 6:00 A.M., 9:30 A.M., 4:00 P.M. and 7:00 P.M.

The night service, which lasted a full month and took place every three to four months, began at 8:00 P.M. and lasted to 8:00 or 9:00 A.M. The main meal was at 7:00 P.M.; the other meals at 7:00 A.M., 9:00 A.M. and midnight. The quantity of food was the same in day and night services.

TABLE II.

Day Shift: 7:00 A.M. to 2:00 P.M. Second week of day work. Measurements taken at 7:00 A.M., 11:00 A.M., 2:00 P.M., in single days, also in the afternoon rest.
Night Shift: Following the day shift after two days of rest. Measurements the same as in Table I.

	Day Shift					Night Shift					Highest Temperature at	Remarks	Summary
	1	2	3	4	5	1	2	3	4	5			
Case 12	√	√	√	√	√	√	√	√	√	√	2:00 P.M. 11:00 A.M. 7:00 A.M.		Prompt inversion.
Case 13	√	√	√	√	√	√	√	√	√	√	2:00 P.M. 11:00 A.M. 7:00 A.M. 7:00 A.M. 10:00 P.M.	0.05° higher than 2:00 P.M.	Strong irregularities in the day shift. Complete inversion with strong irregularities.
Case 14	√	√	√	√	√	√	√	√	√	√	2:00 P.M. 7:00 A.M. 11:00 A.M. 7:00 A.M.		Strong irregularities in day shift. Prompt inversion.

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Niacinamide (nicotinic acid amide)....10 mg.

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1. Jolliffe, N., McLester, J. S., and Sherman, H. C.: J. A. M. A., 118:944, 1942.
2. Luck, J. M.: Science, 94:31, 1941.

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The oral temperatures were taken by these well trained nurses themselves. The first five nurses (see Fig. 1) took their temperature in the last (fourth) week of night service, and the first week of day service. Before the night service they had a two or three months period of day service.

For the purpose of brevity the reader is referred to Figs. 1 and 2. The results may be summarized as follows: Among the five nurses doing night work for the fourth week an entirely complete inversion did not occur in a single case. Two (Nos. I and II) had inversions with the maxima at 12:00 and 3:00 A.M. One (No. III) had a part inversion, one (No. IV) a tendency to inversion, both with many irregularities.

The reversion was accomplished within four days in three cases, but in one case (No. III) not during the time of observation. The fifth nurse showed completely irregular temperature curves on both night and day shifts.

The following four nurses (Fig. II) were examined in the last week of a day service that had lasted for two or three months, and in the first week of the following night service.

On the whole in this group we find irregularities during the day shifts which cannot be attributed to the after-effects of the night shifts two or three months before. In the night shifts in only one case (No. VIII) can we speak with some probability of a kind of inversion. In the other cases there is only a tendency to an inversion beginning with the second day in two nurses, with the fifth day in the other. But in no case was the inversion complete.

As a whole we may say that in the first week of night work of the nurses there is only a tendency to inversion (in one case a kind of inversion only); that the inversion was not entirely completed even in the fourth week of night shift.

Another important part of Goldstein's investigations deals with loss of weight during work on the night shift. The nurses whom he studied received the same amount of food (calories) during day and night service. Quiet and dark sleeping rooms were also provided during the day. But all six nurses weighed before and after a night shift of four weeks, showed a loss of weight. There seems to be no evidence available indicating a parallelism between inversion and loss of weight. There appears to be no connection between these two phenomena.

But loss of weight seems to be a very common consequence of night work. It was found by Goldstein, in studying this problem further in 28 night services of 17 nurses (each night service lasting four weeks), that there was a weight loss in 20 of these 28 night services in spite of extremely favorable conditions for night work.

T. Yagi[17] weighed about 30 girls who were working in day and night shift in a textile factory. His conclusions were as follows:

"Nightwork undeniably and with few exceptions decreases the body weight of female workers." The average difference between the weeks of daywork and those of night work was 935 grams, 2.02% of the average body weight. The percentage loss of weight of the girls under 18 years was much greater than that of the older ones."

These investigations seem to point to one of the unhealthful effects of night work.

But what is now of the greatest interest is the question of efficiency on various night shift schedules.

The British government initiated many valuable investigations with reference to industrial efficiency and fatigue during the first World War, which have thrown some interesting light on this problem. These

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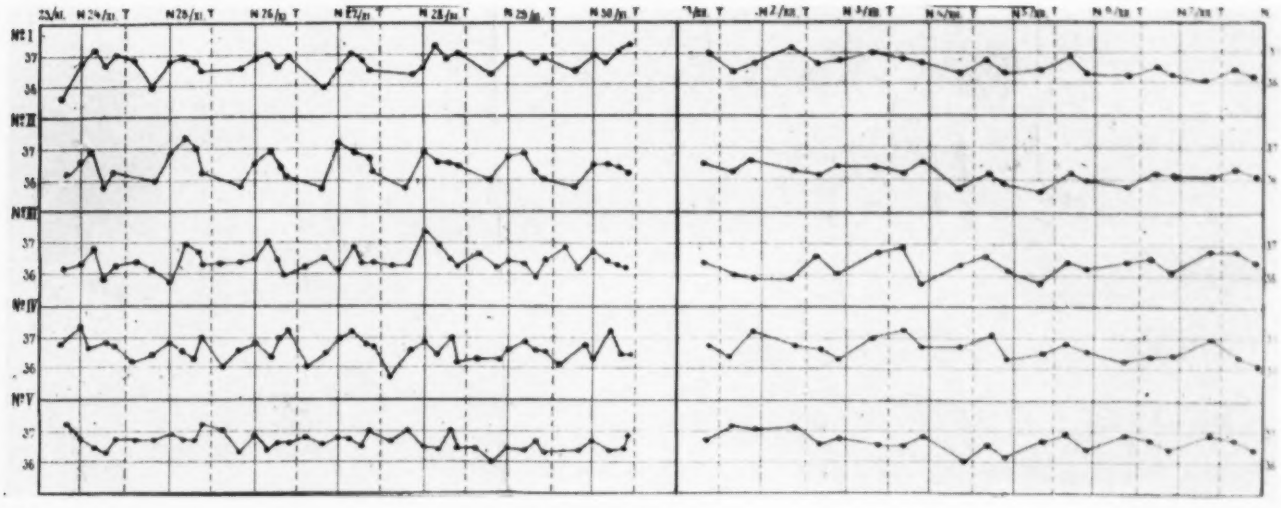
DAY SERVICE: THE FIRST WEEK AFTER THE NIGHT SHIFT, 6:00 A.M. TO 8:00 P.M., WITH A REST FROM 3:00 P.M. TO 4:30 P.M.
MEASUREMENTS 7:30 A.M., BETWEEN 3:00 AND 4:30 P.M., 9:00 P.M.

N MEANS MIDNIGHT T MEANS NOON



NIGHT SERVICE Fig. 1. DAY SERVICE

were performed especially by Prof. M. Greenwood and H. Vernon. The "Health of Munition Workers Committee" quoted and summarized them in its interim report (London, 1917) (6a), and its Final Report (London, 1918) (6b). The following data have been selected from more extensive material.

H. M. Vernon found in one of his investigations: "In the case of the continuous night workers the hourly output was 4.4% less than the average of the same workers when on discontinuous night work before and after the period." In another investigation the discontinuous night work brought an improvement of 11% against the continuous night work.

In his book[15] Vernon presents the following table, output for different occupations and both sexes:

Group of workers investigated	Relatively hourly output during			
	1st week	2nd week	1st week	2nd week
	of day shift		of night shift	
Women turning fuse bodies	138	142	154	150
Women milling screw thread	134	133	132	134
Men sizing fuse bodies	138	145	145	143
Youths boring top caps	128	127	131	123
Mean	134	136	140	137

The mean percentage of lost time[6a] was indicated by Vernon as follows:

221 women aged 21 and upward				89 girls aged 19 and 20			
night shift		day shift		night shift		day shift	
1st week	2nd week	1st week	2nd week	1st week	2nd week	1st week	2nd week
5.8	6.4	8.2	7.5	6.3	7.9	8.8	7.3

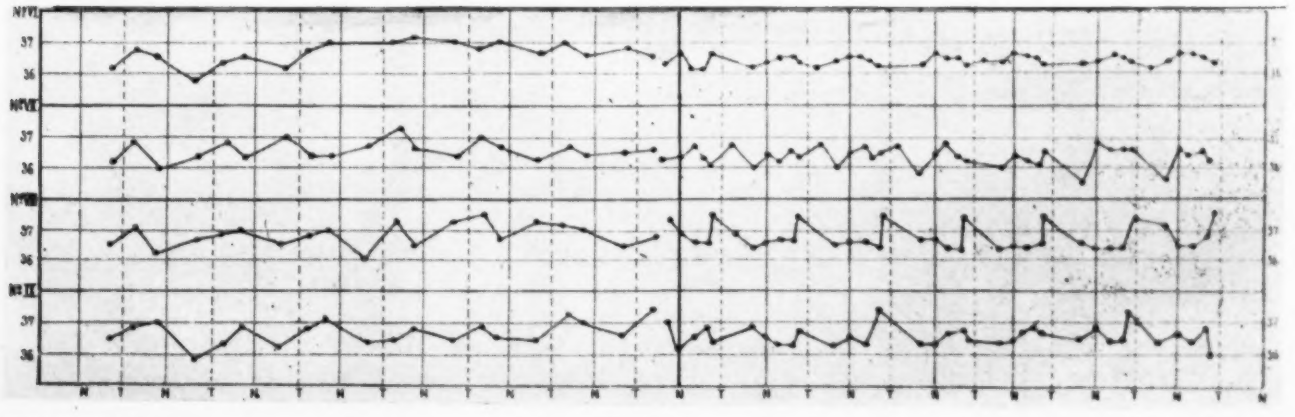
Discussion

THE facts mentioned above and collected from the literature seem to be helpful in throwing some light on some of the questions which have arisen in connection with the rotation of work shifts.

CONTINUOUS NIGHT WORK. One of these questions relates to continuous night work. We have observed that persons who do continuous night work for a long time nearly always show an inversion of the temperature curve. The lowest temperature is in the evening, the highest in the morning (Debszinski, Büchser, Toulouse and Pieron, Goldstein). There seem to be very few exceptions: The night watchman, reported by Goldstein, who failed to show a complete inversion (highest temperature at 2 A.M.), and Benedict's night watchman, whom we discussed above.

DAY SERVICE: THE LAST WEEK OF TWO TO THREE MONTHS' DAY SERVICE.
NIGHT SERVICE: THE FIRST WEEK OF NIGHT SHIFT AFTER TWO TO THREE MONTHS' DAY SERVICE.

N MEANS MIDNIGHT T MEANS NOON



DAY SERVICE Fig. 2. NIGHT SERVICE

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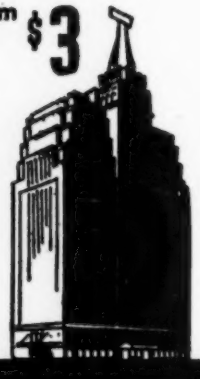

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What does this temperature inversion in continuous night work mean? It seems to indicate that continuous night work causes a temperature inversion in nearly everyone. On the other hand the possibility has to be considered that persons who are not able to accomplish this inversion tend to give up night work because they find it disagreeable.

It is possible, therefore, that only those who respond with a temperature inversion become permanent night workers.

There are other more general considerations connected with continuous night work of such recognized importance as to have resulted in international efforts and conventions to abolish the only continuous night work in Europe, that in bakeries. These relate to all aspects of the worker's life: his home life, his relations to wife and children, to the community—and the reaction of these factors upon his health. It has been proposed in this country to provide the night workers with movies and other forms of amusement. However, that is a minor consideration, since it is impossible to swing around all the other aspects of the worker's community and family life to accord with his night work schedule.

But if we overlook all this and take the position that this situation has to be endured for the duration of the war, the fact that one's efficiency is reduced in continuous night work by comparison with discontinuous night work must be taken into account—especially now.

The British Health of Munition Workers Committee, in its interim (6a) and final report (6b): "Industrial Health and Efficiency," came to the following conclusions:

1. *Women*: "Continuous night work is productive of definitely less output than is the discontinuous system, and the Committee has failed to obtain evidence that the output of the continuous day shift balances this inferiority."

2. *Men*: "There is no significant difference between the rate of output in night and day shift managed in the discontinuous system."

"With men as well as with women the discontinuous system is preferable to continuous night work." A study of the lost time "strengthens the case against permanent night work for men."

"The practical conclusion seems to be, therefore, that, *equally* with women, men can more profitably be organized under the discontinuous than under the continuous system of night work."

And further along in the report:

"Investigations suggest that continuous night work is productive of less output than the system under which a worker is engaged on day and night shift alternately.

"There is no evidence that the output of a continuous day shift balances this inferiority."

THE ROTATING NIGHT SHIFT. If we examine the effects of rotating shifts, the data on temperature curves may be helpful. It seems that, in general, the temperature curves of working people do not follow a very regular pattern. External influences, such as harder work or food consumption, for example, seem to be the causes of these irregularities. There are also differences between different individuals. Some show flatter, others more differentiated, curves. Individual resistance against changes in the temperature curve, moreover, appears to differ greatly in different individuals. If, however, we try to draw further conclusions from these temperature curves this must be done with a certain reserve, owing to the meagreness of some of the material. As has already been noted, the results

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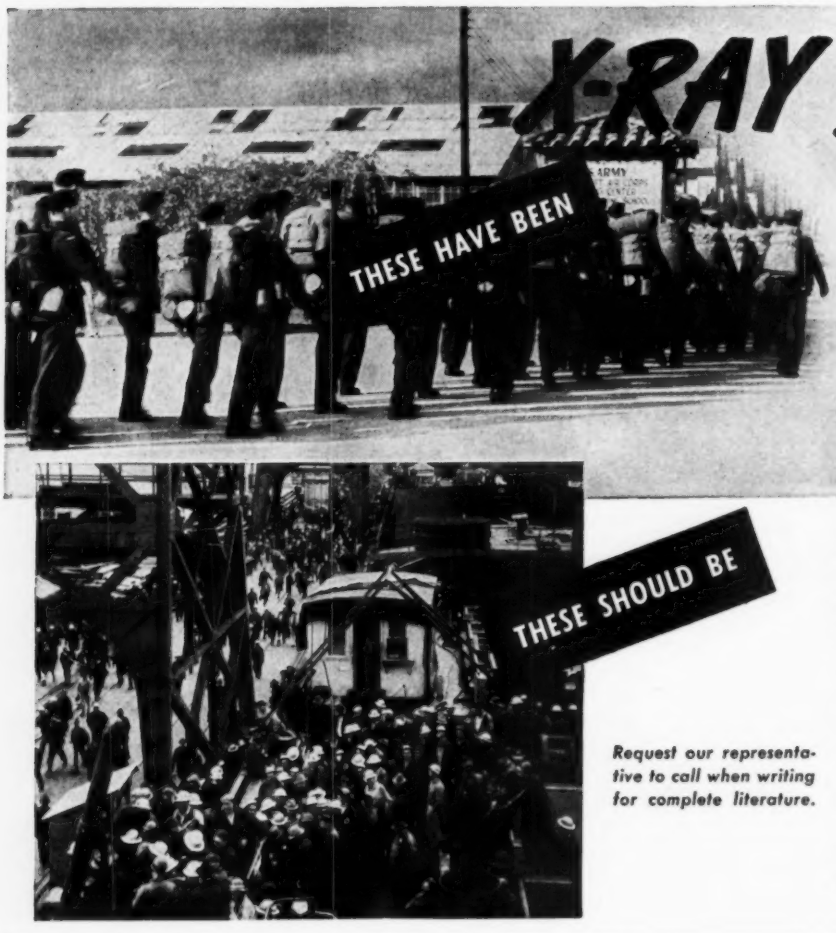

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are not uniform. The differences between Goldstein's bakers and nurses are striking. All of the men, with one exception, had accomplished inversions and reversions of temperature which were complete or nearly complete in five days (a working week). But among the nurses, only one of the four had a temperature inversion within a week. In the others we find only the tendency to an inversion. Even in the fourth week of night service only two or three of the nurses had a clear inversion and these were not entirely completed. The reversion to the normal seems to be more rapid and does not show such marked differences. The differences between these groups, in the matter of their inversion, may be accounted for by the fact that physical activity is known to influence the body temperature.

If we assume that these differences are due to differences in the kind of work done—the bakers working much harder than the nurses and working in hot rooms—other observations seem to point in the same direction. In the "laboratory" experiments mentioned above (Benedict and Snellen, Mosso) with men doing little or no physical work, no inversion could be observed. Similarly Toulouse and Pieron found only smaller and slowly developing changes in their occasional night watchmen at the hospital.

On the other hand Linhard reported temperature inversions in most of the men of his crew within five or six days, Ishikawa reported temperature inversion in his textile workers, who worked on weekly rotating shifts—but his publication is not entirely convincing.

The available data, therefore, would seem to warrant the conclusion that in strenuous physical work, characteristic of factory work, the temperature curve becomes inverted in the great majority of workers during the *first week of the night shift; whereas in work which requires little or no physical exertion the temperature inversion seems to require more time.* The reversion to normal seems to be more rapid than the inversion in both groups.

After reaching these conclusions, let us examine the supposition that changing the temperature curve (and with it, probably, other cyclic functions of the body) entails a certain degree of effort on the part of the body; that working during such a period of adjustment, with a temperature curve not yet adapted to the new routine, results in greater fatigue, loss of efficiency and even loss of a sense of well being. This seems to correspond with one's personal experience when working during the first days of a new work shift rotation. But the British investigations mentioned above indicate greater efficiency and less absenteeism during the first week of night work (the period of adaptation) than during the second week. Goldstein's investigations showed also no parallelism between difficulties in effecting a temperature inversion and loss of weight. Our present knowledge of the physiological responses (including efficiency) to changes of the temperature cycle and perhaps other cyclic phenomena are unfortunately insufficient to provide a definite answer or a positive guide to procedure.

However, in the absence of more definite data to the contrary it would seem reasonable to recognize that during the period of adaptation, which in a factory worker means the first week, there may be a strain in the physiological mechanism which should be avoided in so far as possible. *Therefore, a rotation at longer than weekly intervals is to be recommended. A rotation every four weeks would seem desirable.* With such an interval the occasional workers who are slow to adapt themselves would thereby be protected. There would seem to be no reason for longer intervals between shift rotations.

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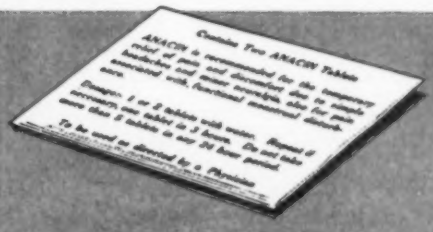

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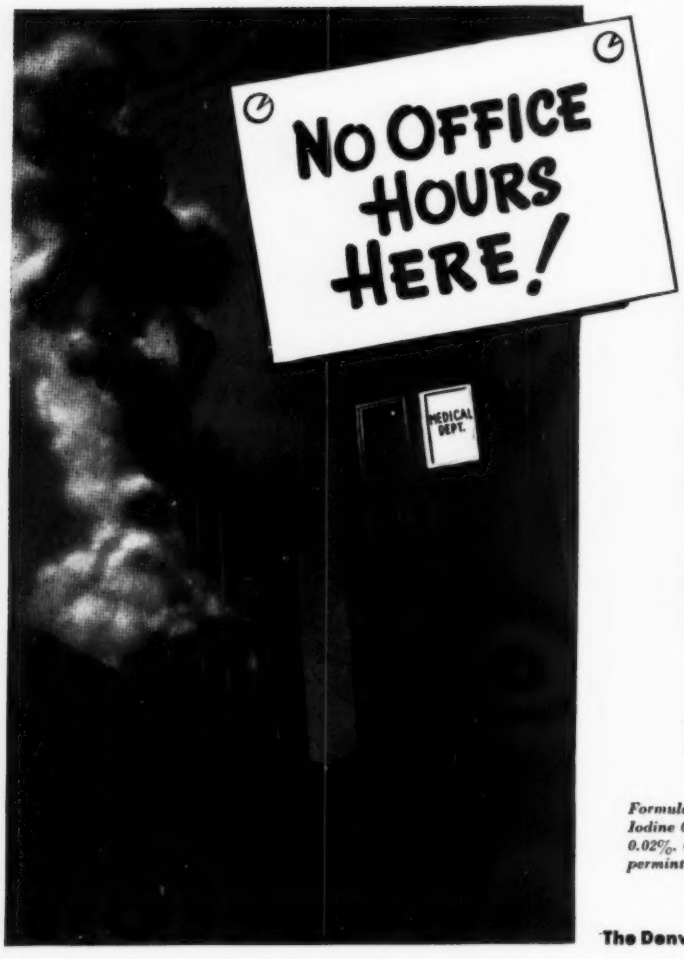

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Persons doing less physical work (e.g., nurses) may perhaps be rotated at *much longer intervals*. But, as regards this, the number of observations is too small to provide guidance. Further research work is necessary.

We have seen that ability to effect a change in the temperature curve differs with different people. The use of a physical examination to select individuals especially fit for night work, would, however, be entirely impracticable in the present state of our knowledge.

NIGHT SHIFT SCHEDULES. A further question of interest is at what hour the shift should begin.

The astronomical day begins at midnight, but the working day of human beings normally begins in the morning.

Starting the working day at midnight, as is customary in some plants, makes it necessary for two workers to do night work—instead of one. This seems highly undesirable.

One must take into account the fact that every worker going to work or leaving his work has to spend at least an hour going back and forth from his home to the factory and in preparation for work or rest (taking a meal, dressing or undressing). If a person works on a night shift he spends the night working and part of the day sleeping. But if the night shift begins at midnight the men on the afternoon shift have to work a good part of the night, going to bed at 1:00 A.M. That would result in unnecessary hardship. Taking into consideration the special conditions of the factory and its situation with regard to the worker's home, the first shift should be from 6:00 A.M. to 2:00 P.M.; the second shift from 2:00 P.M. to 10:00 P.M., and the third shift from 10:00 P.M. to 6:00 A.M. Or, the successive shifts may run from 6:30 A.M. to 2:30 P.M., 2:30 P.M. to 10:30 P.M., and 10:30 P.M. to 6:30 A.M.

In this way only one shift has the disadvantage of night work.

Summary

NIGHT WORK causes either a tendency to inversion or a true inversion of the temperature curve and possibly of some other rhythmic cycles of life.

2. The promptness with which inversion and reversion take place is different in different individuals. But above all, it seems to depend upon the work done during the night. If there is physical work to be done (factory work), the inversion takes place within a week for most people. If, however, the work is essentially mental or involves less physical work (nurses, laboratory-work), the inversion seems to require a longer time. The reversion is more rapid than the inversion.

3. We are inclined to the opinion that the period of inversion and reversion of body temperature is a period in which there may be special physiological strain; and that working and living with a cycle not yet adapted to the changed conditions is to be avoided. However, this needs further proof.

4. If this supposition is correct, a weekly rotation of shifts is not desirable. There should be longer intervals between the rotations of the shifts. For factory workers a rotation at intervals of four weeks might be recommended. The known facts do not justify longer intervals. For other workers (nurses) longer intervals would seem to be indicated. But here especially further investigations are necessary.

5. Hygienic as well as social considerations argue against continuous night work. Continuous night work is also productive of less output than the system under which a worker is engaged on day and night shift

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alternately. Therefore, continuous night work should be abolished as far as possible.

6. The night shift should be so arranged that one shift covers the whole night period. Therefore, no shift should begin at midnight or between midnight and 6:00 A.M.

7. Many questions with reference to night work are not sufficiently clear. These include some of the physiological, pathological and economical effects of such work.

8. The health of our workers as well as our industrial efficiency urgently requires further research work in this field.

[The author wishes to thank most cordially MAY R. MAYERS, M.D., Division of Industrial Hygiene, Department of Labor of the State of New York for her generous help in composing the manuscript for publication.]

References

1. BENEDICT, F. G.: Studies in Body Temperature: I. Influence of the Inversion of the Daily Routine; the Temperature of Night Workers. *Am. J. Physiol.*, 11:145, 1904.

2. BENEDICT, F. G., and SNELL, J. F.: Körpertemperatur-Schwankungen mit besonderer Rücksicht auf den Einfluss, welchen die Umkehrung der täglichen Gewohnheiten beim Menschen ausubt. *Pflügers Arch. f. ges. Physiol.*, 90:33, 1902.

3. CARTER, W. A.: A Study of Heat Production and Heat Dissipation in the Normal and Febrile States. *J. Nervous & Mental Dis.*, New Series, 15:782, 1890.

4. DEBSZINSKI: Medicine No. 18, 1875 (referred by Virchow Hirsch: Jahresberichte uber die Leistungen und Fortschritte der Medicin, 1875).

5. GOLDSTEIN, H.: Der Einfluss der Nachtarbeit auf den Temperaturverlauf des Menschen. (Aud dem Physiologischen Institut (Prof. Exner) und dem Institut fur Sociale Medicin (DR. TELEKY) d. Universitat Wien.) *Oesterr. Sanitätwesen, Suppl. zu* No. 38, 1913.

6. Health of Munition Workers Committee: (a) Interim Report. Industrial Efficiency and Fatigue. Ministry of Munitions, London, 1917. (b) Final Report. Industrial Health and Efficiency. Ministry of Munitions, London, 1918.

7. ISHIKAWA, TOMOYOSHI: Studies on the Influence of the Day- and Night-Shift System upon the Physiological Functions of Labourers. (Institute for Science of Labour.) Kurashiki, 1931.

8. JAEGER, H.: Ueber Korperwarme des gesunden Menschen. *Deutsch. Arch. f. Klin. Med.*, 29:517, 1881).

9. KLEITMAN, N.: Studies on the Physiology of Sleep: VIII. Diurnal Variation in Performance. *Am. J. Physiol.*, 104:449, 1933.

10. KLEITMAN, N.: Sleep and Wakefulness. Chicago, 1939.

11. KLEITMAN, N., TITELBAUM, S., and FEIVESON, P.: The Effect of Body Temperature on Reaction Time. *Am. J. Physiol.*, 121:495, 1938.

12. LINHARD: Investigations into the Conditions Governing the Temperature of the Body. Danisk Exped. 1906-1908 til Gronland nordisky No. 1, Copenhagen, 1910, quoted according to the interim report of the (British) Health of Munitions Worker Committee, and other sources.

13. MOSSO, U.: Recherches sur l'inversion des oscillations diurnes de la temperature chez l'home normal. *Arch. ital. de Biol.*, 6:177, 1887.

14. POLIMANTI, O.: Sopra la possibilita di una inversione della temperatura giornaliera nell'uomo. *Ztschr. f. Allgem. Physiol.*, 16:506, 1914.

15. TOULOUSE, E., and PIERON, H.: Le mecanism de l'inversion chez l'hours du rythme nycthemerale de la temperature. *J. Physiol. & Pathol. Gen.*, 9:425, 1907.

16. VERNON, H.: The Health and Efficiency of Munition Workers. London, 1940.

17. VOELKER, H.: Ueber die taglichen periodischen Schwankungen einiger Lebensvorgange des Menschen. *Pflügers Arch. f. Physiol.*, 215:43, 1926-27.

18. YAGI, TAKATSUGU: On the Variations of the Body Weight of Young Working Girls Employed in Day and Night Shift Work. (Institute for Science of Labour.) Kurashiki, 1931.

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Dental Programs in Industry
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THE LACK of adequate dental care for the industrial worker has been the subject of much discussion in recent months. During the present emergency, no doubt, the same situation exists for other groups. However, since the industrial workers constitute such a vital segment of our population, various plans have been devised as a means of providing adequate dental services for this group. The methods of providing such services may vary, but if they are to be successful they must serve the joint interests of both employer and employee.

There may be some controversy relative to the organizational aspects of industrial dentistry, but it is our opinion that the dental services should be set up as an integral part of the plant medical department. The industrial medical departments are well established and have merited a definite niche for themselves and it would seem unwise for dentistry not to take advantage of these opportunities for promotion and security. The dentist should be located within or near the medical department to facilitate concurrent examinations and referral, and to promote medico-dental cooperation.

The following principles are merely listed as an aid to those who may be considering the establishment of a dental program in industry. Other factors may be considered depending upon various local conditions:

Dentistry in the plant should be limited to the treatment of emergencies and to the treatment of dental disease which is caused by or aggravated by the job.

Such treatment should be furnished without cost to the employee and on company time.

The employee should bear all cost existent to treatment of dental disease which is not caused by or aggravated by his job. Such cases should be referred to private dentists.

The plant should provide modern equipment including x-ray and other facilities adequate to insure efficient care of all employees eligible for dental treatment.

All members of the dental staff should be members in good standing of their respective professional societies.

The plant should pay salaries sufficient to secure the services of well-qualified operators.

Dental Services should include:

I. Emergency treatment provided by plant (on plant time):

A. Treatment necessitated by occupational accidents.

B. Extractions or other treatment designed to allay pain or to frustrate the fulmination of acute infections.

C. Treatment of acute occupational diseases.

II. Non-emergency treatment provided by plant (on plant time):

A. Follow-up treatment subsequent to emergency treatment outlined above.

B. Treatment of chronic occupational disease. Example — Cleaning when indicated by reason of job-connected stomatitis, but not for esthetic reasons.

C. Diagnosis (complete x-ray and clinical) and consultation—with the approval of local dental society. Thorough mouth examinations should be made of all persons upon entering employment, and they should be requested to begin their indicated health conservation programs at once. One examination (at least) per year should be provided for all employees. A follow-up system should be devised to encourage workers to begin and to continue indicated treatment.

D. Dental health instruction (individual and group). Workers should be referred to outside dentists of their own choice for all treatment for which the company is not liable. Upon request of the dentist duplicate x-rays may be furnished.

Emphasis should be placed on quality rather than on quantity of service.

Adequate records should be kept which will facilitate accurate individual dental health status appraisal and program evaluation.

Prepared by the Bureau of Public Health Dentistry and the Bureau of Industrial Hygiene, Michigan Department of Health.

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been better in this war. An outbreak of mild influenza started in December, 1941, and carried over into early 1942 and produced relatively high admission rates. Subsequently, the curve has shown only the expected seasonal variations. Practically no deaths occurred as a result of this outbreak. One form of pneumonia, designated by the Army as "primary atypical pneumonia," showed during the last year. In March, 1942, the Surgeon General called attention to the disease and so designated it. In the first month, there were over 100 cases reported, and the frequency increased to a peak in April, 1943, of about 3,500 cases. Since then there has been some decline. Mortality is low, but the disease contributes heavily to keeping men off active duty, since lesions, demonstrable by x-ray, persist for several weeks. In the Navy, cases of atypical pneumonia ran 1.5 per thousand during the first six months of 1943. . . . MEASLES which was epidemic during the last war has been relatively unimportant this time to either Army or Navy. In March, 1941, measles reached a peak rate of almost 60 per thousand per annum in the Army in the continental United States. In March, peak month in 1943, it was about 30. During the last war, it was the sixth greatest cause of admissions to hospitals on account of disease, the seventh in loss of time, and fourth among the diseases as cause of death. By far the larger number of deaths from measles was caused by complications of which the most important was streptococcic bronchopneumonia. . . . MUMPS, in the last war, was fourth in numerical frequency among diseases in the Army. It was third as a cause of loss of time in the Army, first cause in the Navy and, in 1918, showed the exceptionally high rate of roughly 70 per thousand per year in the Army, 35 per thousand in the Navy. It has caused very little trouble in this war. The Navy reports an incidence of seven cases per thousand. . . . TUBERCULOSIS was a costly factor in the last war. The rate for the Army was nine per thousand in admissions to hospitals. It caused six discharges for disability per year per thousand men in the Army. The death rate was about 0.7% per thousand. It was first among all reasons for dismissal from the Army, causing almost 15% of the disability discharges. It was felt that tuberculosis often was present before men were admitted into the armed forces and that gas injury rarely was an actual cause. In this war all inductees receive chest x-rays in their preliminary examination. This is considered the best method of detecting incipient or early tuberculosis, and many men have been brought under treatment as a result of this process. . . . VENEREAL diseases ranked second as a cause of admissions to hospitals during the last war and second in loss of time. It presents a much more hopeful picture now. Because new methods of treatment indicate a high percentage of cure, the Army now is accepting men who have uncomplicated cases of veneral diseases. Sulfonamides are used for gonorrhea and cures run about 80% in the period of ten days. Syphilis often yields to new techniques within a maximum of six weeks. The Army lays stress also upon improved prophylactic facilities and extensive instruction of the men in the hazards of the disease. There are periodic and surprise inspections. Recreational facilities are provided within the camps and civilian authorities have cooperated in providing healthful entertainment in the cities. . . . FILARIASIS, a tropical disease which causes some concern among Naval forces, is a parasitic ailment transmitted by mosquitoes. Its endemic areas cover a large part of the tropical zone of the world. The larvae of the parasitic worm are injected through the bite of the mosquito and the life-cycle of the micro-filariac in the human system results in lesions and glandular swellings. Elephantiasis, or gross deformation through enlargement of certain parts of the body, has been traced to one variety of this parasite. The disease is of slow development, and the Navy and the Army are alert to avert infection of the personnel. Reports show fewer than seven cases per 100,000 men in the Navy. . . . WITH the exception of the WACS, the women's services keep no separate records, and their care and standards of health are incorporated in the reports of the parent services. It is stated, however, that their health problems are much the same as for the men, save for venereal diseases in which their record is much better. The Army has prepared a statement of the causes of discharge for those WACS released for disability. It shows that about 25% were released because of ailments or defects peculiar to women, and about 45% for neuropsychiatric disorders. In explanation of the latter statement, it is said that many of those discharged for neuropsychiatric disorders would probably not be considered as abnormal in

Food Rationing

AND THE EFFICIENCY OF THE WORKER

As civilian food supplies dwindle because of the increased requirements of our armed forces and allies, the spectre of widespread malnutrition looms more vividly. Yet the nutritional state of our population must be maintained at a high level because of its effect upon morale and upon the efficiency of the industrial worker.

Ovaltine offers a ready means of overcoming the adverse influence of curtailed food availability. The well-rounded composition of this delicious food drink assures an adequate intake of virtually all essential nutrients—not only vitamins, but proteins and minerals as well.

From the analyses reproduced below it is apparent that the average diet, plus two or three glassfuls of Ovaltine daily, adequately satisfy all nutritional needs. Thus Ovaltine can prove of great service in maintaining the output of our essential war industries. The Wander Company, 360 North Michigan Avenue, Chicago, Illinois.

Ovaltine

Three daily servings (1½ oz.) of Ovaltine provide:

	Dry Ovaltine	Ovaltine with milk*		Dry Ovaltine	Ovaltine with milk*
PROTEIN	6.0 Gm.	31.2 Gm.	VITAMIN A	1500 I.U.	2953 I.U.
CARBOHYDRATE	30.0 Gm.	62.43 Gm.	VITAMIN D	405 I.U.	480 I.U.
FAT	2.8 Gm.	29.34 Gm.	THIAMINE	.9 mg.	1.296 mg.
CALCIUM	.25 Gm.	1.104 Gm.	RIBOFLAVIN	.25 mg.	1.278 mg.
PHOSPHORUS	.25 Gm.	.903 Gm.	NIACIN	5.0 mg.	6.9 mg.
IRON	10.5 mg.	11.94 mg.	COPPER	.5 mg.	.5 mg.

*Each serving made with 8 oz. milk; based on average reported values for milk.

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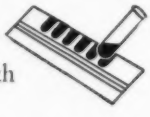
(3) drop one Clinitest tablet into tube—that is all. Allow for reaction —then compare with



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civilian life. Of other individual defects, arthritis caused 4% of all discharges, feet defects 4% and organic heart disease 2% and discharge for venereal diseases are negligible. The total number discharged for medical reasons from August, 1942, to May, 1943, the period covered by the report, was about 1,100.

Vitamins for the Industrial War Worker

THE NEW YORK State nutrition plan, announced recently by the Office of War Nutrition Services of the State War Council, aims to provide essential vitamins, particularly the vitamin B complex, in the on-the-job diet of industrial war workers to build health and increase capacity for production.

The first of its kind inaugurated in this country, the plan anticipates raising the nutritional status of the war worker to an optimal level for the important vitamin B complex by the feeding, during working hours, of brewers yeast which is one of the best natural sources of this group of vitamins and which is available in this country in huge quantities and at very low cost. It is also proposed to fortify the worker's dietary while on the job with foods rich in vitamin C and to encourage consumption of more milk, eggs and other dairy products.

The vitamin B complex, especially B_1 or thiamin, is particularly important to the worker in industry. Experimental studies with human subjects have demonstrated that a diet low in this principle may result in marked fatigue, emotional disturbances and lowered ability for physical and mental work, symptoms that exert a direct adverse influence on industrial output. It is hoped that through feedings of brewers yeast, which may readily be added to a number of foods, the worker may obtain approximately one-half of his daily requirement of vitamin B_1. This element is difficult to obtain in sufficient quantities in the average diet owing to material vitamin losses with present methods of cooking, especially mass-cooking procedures employed in restaurants and cafeterias. The deficiency of vitamin B_1 in most diets may also be accounted for by the fact that a large part of the caloric intake of the average worker is derived from white flour which is not enriched and from sugar which has no vitamin content.

The New York State nutrition plan will also reach wives, boarding-house keepers, and other persons responsible for the feeding of industrial war workers, through an intensive program of instruction in food content, the prevention of vitamin losses in cooking and provision of nutritious foods in the worker's lunch box. Action toward this goal has been taken already by several of our leading war industries but has been restricted in scope in that it has been directed primarily to the wives of workers.

An approach will be made also to industry through both labor and management with regard to more adequate provision for feeding the worker while on the job. This will include an attempt to obtain better facilities for the preparation and serving of foods within the plants, improvement of meals served, and provision for between-meal feeding which was shown to be effective in preventing the decrease in muscular efficiency that occurs in the between-meal periods. Consumption of protective foods, such as milk and fresh fruit juices, will be encouraged in preference to the usual soft drinks and candy. In this connection, Dr. Samuel Hyman, district health officer of the Utica district, surveyed a number of industries and found that the consumption of the protective foods was low due to the employees' poor food seelction. His success in stimulating plant personnel and concessionaires to offer more food of this kind in the between-meal feeding and at mealtimes is evidenced by the subsequent increase in the consumption of such foods as milk and fruit juices.

The program also involves education of restaurant and cafeteria proprietors outside of plants and plant control with respect to proper methods of mass cooking, food selection and improvement of restaurant or cafeteria facilities in areas where such establishments are limited or overcrowded.

In reaching this objective, the Office of War Nutrition Services plans to utilize all available trained personnel of the various departments and agencies of the state government and of all existing county organizations that have been actively engaged in nutrition education and demonstrations in the state in the past few years.

Health News, New York State Department of Health, September 7, 1942.

Plant First Aids

THE following is a portion of an article on the "Purpose of Plant First Aids," written by the Supervising Nurse of the American Bemberg Corporation, Elizabethton, for their

Bacteria Bombardier

Unhesitatingly the military physician faces a menace more deadly than bullets. Epidemics! Dire threat to troops in primitive lands. Epidemiology teams—two officers and four corpsmen—quickly "bomb out" conditions that foster plagues.

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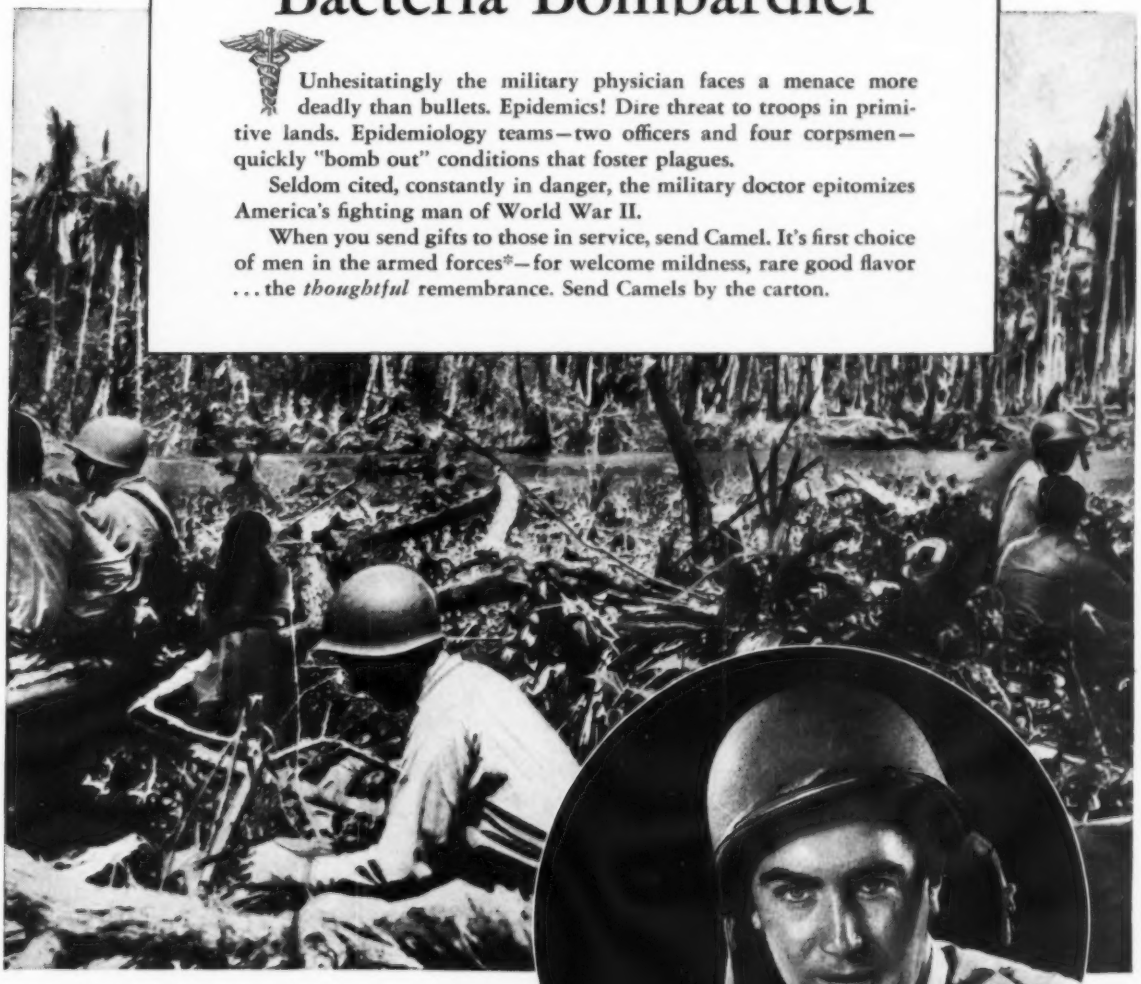

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*With men in the Army, Navy, Marine Corps, and Coast Guard, the favorite cigarette is Camel. (Based on actual sales records.)

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New reprint available on cigarette research—Archives of Otolaryngology, March, 1943, pp. 404-410. Copies on request. Camel Cigarettes, Medical Relations Division, 1 Pershing Square, New York 17, N. Y.

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plant paper, *The Watauga Spinnerette*, November, 1942: "So you're a new employee, and your head is still whirling a bit from the effects of your inauguration into the mysteries of a rayon plant. You are still wondering why that gentleman at the Personnel Office, and later the nurse in the white uniform at the First Aid, took up so much time telling you to do this and not to do that, and have you been vaccinated for smallpox, immunized against typhoid fever, and by all means if you get a scratch on your little finger rush right to the First Aid with it. We, of the First Aid, want you, as a new employee, to know that we are here for your benefit. We want you to feel at home here, and we want you to report every injury or illness you suffer inside the plant. The First Aid will care for injuries received outside of the plant in order to enable you to remain on the job. Each employee has a medical record, and this record is very valuable both to you and to us. This record shows us what defects the examining physician found when you passed through the Personnel Office, and what we must do to assure you better health and fewer lost days due to accidents. If you have bad teeth, high or low blood pressure, if you are under or overweight, or if your eyes need attention, it is a part of our job to see that you do not forget these things. It is also our job to advise you in the proper methods of getting back to normal in the shortest possible time in order that you will not only feel better but will be able to do your work with greater ease and more efficiency. If you were given a re-check slip when you came into the plant, don't fail, under any condition, to read it and comply with the instructions thereon. If you are supposed to report to the First Aid for a check on your weight, blood pressure, teeth or other causes, do this without fail. This is the only way in which we can be absolutely sure that you are receiving the best attention. Here in the First Aid we also immunize for typhoid at certain specified times each year and give smallpox vaccinations. Now all new employees that have not been vaccinated for smallpox are advised to have it done when they first come to work at the plants. Most people seem to think that smallpox has died out in America, but this is a false impression. Last year there were 1,368 cases reported to our health departments throughout this country, and it is only through continued vaccinating that we can prevent this scourge from becoming a virulent epidemic. We ask you please to cooperate with us in this respect."

Medical Services in Industry

The Full-Time Physician

AMONG the many duties and responsibilities which should be assumed by the full-time physician in industry, the following are of primary importance:

1. Provide curative care for injuries which are the result of industrial accidents or illness from occupational diseases.

2. Assist in controlling accidents and occupational disease hazards through cooperation with the personnel and safety departments of the industry.

3. Conduct pre-placement physical examinations with an understanding of the physical requirements of various departments in which the applicant might be employed. In case of rejection, advice should be given to the applicant with respect to correction of his defect, if correctible, or appropriate advice regarding rehabilitation and the type of employment which would be suitable if the defect is not correctible.

4. Make routine periodical physical examinations on regular employees with proper advice regarding defects.

5. Conduct special physical examinations for workers exposed to toxic substances periodically as required by the nature of the exposure.

6. Render to the employee while on the job reasonable first-aid or offer advice for non-industrial injuries or illnesses.

7. Consult with those suffering from any situation causing maladjustment to work; offer proper advice or refer them to private practitioners or community agencies where indicated.

8. Take proper steps which may be indicated to control communicable diseases among employees, including notification to the local health officers.

9. Maintain general supervision over health conditions in the factory and over health education carried on by personal interview or through literature for employees as a group. Special health programs should be initiated where facilities are available, such as examinations for tuberculosis, etc.

10. Keep accurate records of all services rendered with statistical summaries which will supply an index for health conditions and may point to particular health hazards which may be subject to correction or control.

The examinations referred to above are medical procedures. For that reason accurate records should be kept and the information should be treated as confidential to medical personnel except when permission is granted by the patient to reveal the data or a report is required by court order.

The employer should be informed of the physical fitness of the applicant by a code such as that recommended by the American College of Surgeons:

Chapter V and VI of "Fundamentals in the Organization and Operations of an Industrial Health Program by a County Medical Society," an Outline prepared and distributed by the Committee on Industrial Health, Ohio State Medical Association, October, 1943.

STATEMENT of the ownership, management, circulation, etc., required by the acts of Congress of August 24, 1912, and March 3, 1933, of Industrial Medicine, published monthly at Chicago, Illinois for October 1, 1943. State of Illinois, County of Cook.—ss: Before me a notary public, in and for the state and county aforesaid, personally appeared A. D. Cloud, who, having been duly sworn according to law, deposes and says that he is the Publisher of Industrial Medicine and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit: 1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, A. D. Cloud, 533 Madison Street, Glencoe, Illinois; Editor, Dr. C. O. Sappington, 330 South Wells Street, Chicago, Illinois; Managing Editor, None; Business Manager, Stephen G. Halos, 605 North Michigan Avenue, Chicago, Illinois. 2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address as well as those of each individual member, must be given) Industrial Medicine Publishing Company, 605 North Michigan Avenue, Chicago, Illinois; Charles Drueck, Jr., 58 East Washington Street, Chicago, Illinois; Stephen G. Halos, 605 North Michigan Avenue, Chicago, Illinois; A. D. Cloud, 533 Madison Street, Glencoe, Illinois. 3. That the known bondholders, mortgagees, and other security holders owning or holding 1% or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state) None. 4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him. 5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the 12 months preceding the date shown above is..... (This information is required from daily publications only.) A. D. Cloud, Publisher. Sworn to and subscribed before me this 30th day of September, 1942. (Seal.) R. A. Luker. (My commission expires November 18, 1946.) [NOTE—This statement must be made in duplicate and both copies delivered by the publisher to the postmaster, who shall send one copy to the Third Assistant Postmaster General (Division of Classification), Washington, D.C., and retain the other in the files of the post office. The publisher must publish a copy of this statement in the second issue printed next after its filing.]

At the end of 4 to 6 hours Sal Hepatica solution mounted almost to top of thistle tube from low level (see inset).

In Vitro and in Vivo

SAL HEPATICA CREATES LIQUID BULK

IN glass and in the ileal loop of a laboratory animal Sal Hepatica demonstrates the reason it has become the efficient saline laxative recommended by medical men everywhere—the ability to create *liquid bulk.*

Sal Hepatica in laxative solution was placed in a dog's isolated ileal loop. An hour later examination revealed that the solution had gained 34 per cent in volume. A laxative solution of Sal Hepatica placed in a thistle tube sealed tight with a semi-permeable membrane and suspended in Ringer's solution gained approximately 34 per cent in volume within two hours —and about 100 per cent in 6 to 12 hours.

When gentle yet thorough laxative action is needed for patients, physicians everywhere naturally turn to Sal Hepatica.

Sal Hepatica in laxative solution increased 34 per cent within one hour in an isolated loop of a dog's ileum.

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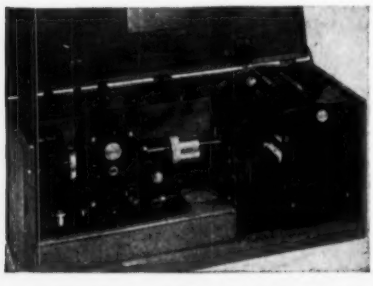
These hectic times are bound to increase cardiac disorders. Complete routine examinations, including electro-cardiograms are therefore more essential now, than ever before. The work of the Cardiologist at home and in industry, is indeed vital war work.



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Class A, or 1. Physically fit for any work.

Class B, or 2. Physically underdeveloped or some minor anatomical or other correctible defect; otherwise fit for any work.

Class C, or 3. Fit only for certain employment when approved and supervised by the medical department.

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The employee suffering from a non-occupational disease or injury should be encouraged to seek care from an attending physician of his own choice. It is the duty of the industrial physician when such cases are brought to his attention to advise the employee to consult his own physician immediately or to refer the case to a physician in private practice in event the employee has no family physician.

Instances will arise where employees needing medical care for non-occupational disease or injury will be unable to finance the proper medical attention or applicants for employment will be found unfit for work due to correctible conditions, but who cannot finance remedial care due to their unemployment. Since the industrial physician will be confronted with problems of this kind, he should be familiar with the sources or agencies of the community to which such individuals may be referred and from which they may receive assistance. These facilities may include official health agencies, clinics, voluntary health associations or local welfare organizations.

The Part-Time Physician

THE services which may be rendered by the part-time physician are the services described in the previous chapter referring to the full-time physician, providing the number of employees is few enough to allow the complete service to be rendered on a part-time basis. Most frequently this is not the case. As a result several of the activities must be selected and others sacrificed.

It is difficult to name the activities in the order of importance in view of the fact that all of the services are essential for a well-balanced program. However, two recommendations of the preceding chapter should not be sacrificed, namely: curative care for injuries or illness from occupational diseases, and accuracy of records. If pre-employment or periodical examinations are made, the findings should be treated in the same confidential manner as the examinations made by the full-time physician.

The "on-call" physician actually can do no more than render care for injuries unless he becomes converted to some extent into a "part-time" physician. This requires regular attendance at the plant at a given time and this is encouraged even though the first visits be as seldom as once a week. It is only in this way that the "on-call" physician can become familiar with the plant, its employees, its policies, its hazards, its problems, and its medical equipment. This familiarity will greatly enhance the ability of the physician to advise the management concerning the medical and health questions which inevitably will arise.

COMMENT and OPINION

—Continued from page 54.

of the essential measures for safeguarding internal security. This is especially true of the Emergency Medical Service. If we had not created a nation-wide organization for civilian defense two years ago, we would be obliged to organize one today for home security. Disasters of all kinds have increased because of the tremendous speeding up of our great industries, the overburdening of our railroads, and the inexperience of hundreds of thousands of new war workers. Our police, our fire departments, our public works and utility services, and our hospitals, upon which we depend for protection, are being increasingly depleted of trained personnel. We must, therefore, strengthen our voluntary protective services throughout the land. Along the Pacific and the Atlantic coasts these services must be especially strong in volunteer personnel and equipment to guard us against the hazards of enemy attack and sabotage until the Army, itself, advises the danger ended."

Carbon Monoxide

THE diagnosis of carbon monoxide poisoning is based upon history of exposure, symptoms and physical and laboratory findings. Since these

are medical procedures they will not be discussed in detail. It is desirable to describe one test, however, which is simple and reliable, even in the mildest cases. Reference is made to the pyrotannic acid method of determining the carbon monoxide saturation of the blood. The technique consists of mixing a drop or two of blood with a mixture of pyrogallic and tannic acids. Normal blood will be turned a light gray-brown color in the mixture, whereas blood containing carbon monoxide will be given a red color, the intensity of which corresponds to the degree of blood saturation with carbon monoxide. This percentage is determined by matching the color produced in the test tube with permanent color standards that range from 0 to 100% saturation. The pyrotannic acid test can be made at the site of the trouble in a minute or two. The test should be made on all cases presenting mild symptoms of carbon monoxide poisoning, and on these cases the test is the most reliable one available. Workers with exposures to unknown concentrations of carbon monoxide presenting mild symptoms such as headache, weakness, dizziness, etc., should be examined in this way. If the test is positive, no doubt will remain that the symptoms are due, at least in part, to carbon monoxide, but, if negative results are obtained, carbon monoxide as a cause of the illness can be ruled out.

—From "Carbon Monoxide Poisoning," by CRIT PHARRIS, M.D., in *Connecticut Industry*, October.

Depigmentation

CHICAGO TRIBUNE, October 8, 1943, had the following on its front page, captioned "Finds Chemical That Will Turn Any Skin White": "October 7 (AP)—A new chemical that turns skin of any color white was described today before the 93rd annual session of the Medical Society of Pennsylvania. DR. LOUIS C. SCHWARTZ, medical director of the U. S. Public Health Service, said the discovery was made during a study of a skin disorder among negroes employed in a leather plant. The hands of workers wearing gloves treated with monobenzyl ether of hydroquinone— intended to prevent deterioration of the gloves—became white, DR. SCHWARTZ related. Later experiments on the skin of animals, he said, disclosed that the change lasts from six months to six years." Also in *Chicago Tribune*, October 9: "Announcement of the ability of monobenzyl ether of hydroquinone to turn skin of any color white, made Thursday at a medical convention in Philadelphia, produced a disagreement among medical men yesterday as to the chemical's characteristics. DR. IRVING S. CUTTER, *Tribune* health editor, said properties of monobenzyl ether of hydroquinone as a skin whitener have been known to science for many years. But he added that the chemical is highly poisonous and warned that any person who bathed in the solvent to achieve discoloration would run great risk. DR. LOUIS SCHWARTZ, a colonel in the United States Public Health Service, who described the drug's action before the Philadelphia doctors, contended the compound is harmless. He said he has administered it internally to black pigs and their skins turned white. He even took 10 grains of it himself he added, in an effort to induce a negro hospital orderly to do likewise. The orderly refused." In INDUSTRIAL MEDICINE, October, 1939, DR. WILLIAM D. MCNALLY, in an article entitled "Depigmentation of the Skin," reviewed the literature on vitiligo, and described 34 cases of occupational leukoderma in which he said: "These cases, 34 in all, came to my attention in April, 1939. Although these men were engaged in this type of work for many years, not any of them had had such previous occurrence until all were given new rubber gloves to wear, which covered the hands and arms nearly to the elbows, when they began to notice, after several months' usage of these gloves, that areas of depigmentation appeared. It was found that the depigmented areas occurred not only on the hands and arms but also on other parts of the body wherever the gloves came in contact with the skin when the subjects were perspiring freely. An investigation showed that when the gloves fitted very tightly and no perspiration came in contact with the skin there was no depigmentation. The depigmentation occurred gradually over a period of several months with a mild inflammatory reaction, but no vesi-

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THE MIND OF THE INJURED MAN

A Study of Trauma and the Nervous System, with Particular Reference to Neuroses Associated with Injury

by Joseph L. Fetterman, M.A., M.D.,

Assistant Clinical Professor of Nervous Diseases, Western Reserve University School of Medicine, Cleveland, Ohio

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cation or ulceration, and was caused by an antioxidant containing monobenzyl-ether of hydroquinone containing unchanged hydroquinone. Some of the synthetic rubbers of the neoprene type contain also betanaphthoquinone and hexamethylenetetramine. This latter substance decomposes into formaldehyde. Castellani and Chalmers reported a depigmentation due to formaldehyde. However, in one colored subject in whom I have applied mixtures of formaldehyde and formic acid over a period of four months I have been unable to produce a depigmentation although a severe dermatitis resulted. Hydroquinone, itself, causes a dermatitis. White and Northcote reported a dermatitis on the fingers from hydroquinone used for developing films. They do not mention any evidences of a leukoderma from this reagent. In the author's cases there was no illness during the development of the white patches. The depigmentation eventually became more pronounced and has remained white for nearly a year. In several of the patients areas of pigment are reappearing. It is of interest that the skin of the white men engaged in this type of work and wearing the same type of gloves, did not show any great action until they were exposed to the rays of the sun when areas of leukoderma appeared. The occupational history of all the men was essentially the same in that they worked for 15 years or more in tanneries; that in June, 1938, all were given new rubber gloves to wear and that in September of the same year they began to notice a bleaching of the skin; that this bleaching increased and that in December of the same year they ceased wearing this type of gloves. The ages varied from 38 to 56 years. Wassermann tests were negative with the exception of one. Blood counts were normal with the exception of one. The temperatures and pulse rate of all the men examined were within the normal range. The blood pressure of nearly all was elevated, ranging from 150 to 230 systolic, and 78 to 110 diastolic."

Johnson & Johnson Grant

DR. ROSS G. HARRISON, Chairman of the National Research Council, has announced the acceptance by the National Academy of Science—National Research Council—of a grant from the Johnson & Johnson Research Foundation in the amount of $75,000. The grant was made to enable the Division of Medical Sciences of the Council, under the chairmanship of DR. LEWIS H. WEED, to gather medical information pertaining to the war effort and to disseminate summaries. The program of the Division of Medical Sciences of the National Research Council contemplates coverage of the various medical reports and bulletins which emanate from civilian and military activities throughout the world. The enterprise should fill a much needed gap in the war effort in medicine; for one of the greatest difficulties encountered in medicine today lies in providing adequate up to-date information to the medical officers of the armed services both in this country and abroad and in making the experience of war medicine available as far as possible to civilian physicians.

Health Reasons?

THE Committee on Industrial Health has given study to a very urgent matter and we commend to your special attention the following paragraph from that report: "Competition among employers for the available manpower has also given rise to a condition involving the profession. Since the freezing of essential workers in their jobs there have been many requests that the family doctor give his patient, who wishes to transfer to a better paying job, a certificate setting forth the fact that such a transfer is imperative for health reasons. Many such certificates have been provided either setting forth no definite basis for the needed change or such palpably artificial reasons that they have caused those handling these cases to be skeptical of all doctors' certificates unless accompanied by such direct statements or evidence as can actually be checked by a disinterested referee. This matter merits serious consideration and the taking of such steps as may prevent not only a loss of standing but the additional risk of greatly impeding the war effort. Your Committee has been in touch with the Area Director of the War Manpower Commission and recommends that this contact be maintained and that such assistance as may be appropriate be given."

—From the proceedings of the Utah State Medical Association, House of Delegates Meeting, in *Rocky Mountain M. J.*, October.

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